

# District of Columbia Employment Projections by Industry and Occupation 2002-2012



**Anthony A. Williams, Mayor**  
*Government of the District of Columbia*

**Gregory P. Irish, Director**  
*Department of Employment Services*

**Colleen Lee, Chairperson**  
*Workforce Investment Council*



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## Executive Summary

This report presents employment projections for Washington, D.C., for the period from 2002 to 2012. The report includes projections for employment by industry and by occupation. A summary of findings includes:

**A projected employment growth near one percent per year for the District of Columbia.** We are projecting an increase of approximately 67,700 jobs in the District over the ten-year period 2002-2012, or a little less than 6,800 jobs a year on the average, a compounded annual growth rate of 0.9 percent.

**This compares with a projected employment growth of 1.6 % per year for the metropolitan area, as reported independently by Global Insight.** For the Washington, D.C., Primary Metropolitan Statistical Area (PMSA), their independent projection forecasts a compounded annual growth rate of about 1.6 percent. In the same 10-year period, independent projections by Global Insight show the metropolitan area's jobs will reach 3,299,713 by 2012.

**The service sector has the biggest share of growth in the District.** Most of the jobs and the job growth in the District are in industries that provide services. Only 2 percent of jobs in 2002 were in goods providing industries, manufacturing and construction, and this will not change in the next 10 years.

**Professional and Business Services among fastest growing in the service sector.** Professional and Business Services is the most important of the services providing industries, and one of the fastest growing. With 139,177 jobs in 2002, it will add more than 27,000 new jobs over the decade. Within this group, legal services, computer design and management consulting services lead the way by adding more than 11,000 jobs.

Next in importance is Educational and Health Services with 99,761 jobs in 2002 is projected to add 11,477 new jobs over the decade. Non profit organizations, with nearly 50,000 jobs, should add between 5,000 and 6,000 jobs.

**Government jobs will decline in importance.** Federal and local government jobs will decline in importance to 28 percent of the total, in 2012 with city jobs declining absolutely and federal jobs declining in importance as a result of slow growth. Thirty percent were in federal or local government in 2002.

**Employment gains will diversify.** The remaining 68 percent of all jobs in the District in 2002 in non-government, services-providing industries will increase their share to 70 percent in 2012. The District has a different distribution of occupations than the country as a whole. Management, business and financial occupations are more than twice the U.S. share, fully 22.5 percent of District employment. Professional and related services occupations are 31 percent of District jobs -- 60 percent higher than the national average. Approximately 23 percent of professional occupations are in legal services. Administrative support occupations are about 2 percent above the national average, which is 18.9 percent. All other occupational categories in the District trail the national average. The forecasts show that the current occupational mix will not change by more than a small amount.

**Environmental engineers to undergo high growth.** For the first time environmental engineers show up on the list of high growth occupations with as many as 700 new jobs a good possibility.

**Computer jobs across six different computer specialties are expected to grow.** Growth in computer jobs will range between 2 and 4 percent. Lawyers and paralegals are also expected to add 2,500 jobs over the decade, although these are modest growth rates. Teaching positions, especially college teaching, have 2 to 3 percent growth rates with as many as 8,000 new jobs possible.

**Professional and service occupations will stay in balance.** Even though professional occupations will grow, service occupations will grow enough to roughly maintain their share of jobs. Security guard, waiter-waitress, or janitor and in office-administrative support occupations like customer service representative, receptionist, or legal secretary will add approximately 8,000 new jobs.

## Executive Summary (cont.)

**More than 90 percent of District occupations are growing.** The District will remain a city with more than 50 percent of its jobs in managerial and professional occupations. A small change in occupational mix will occur between service employment and sales, production and transportation occupations because service employment will have many more new jobs than the other sectors combined.

**Jobs in the Washington area have higher educational requirements than the national averages.** The District has a knowledge economy where high education continues to be a bellwether in the types of jobs that are available. Nearly 7 percent of District jobs require professional degree

training, meaning law degree, PhD, or medical degree, compared to less than 2 percent nationally. The District of Columbia has more than 40 percent of its employment in jobs that require college degree training, compared with 20 to 22 percent of jobs in the national economy. The concentration of law firms, lawyers, and legal services occupations increases the share of jobs requiring professional degree training.

**Significant need for post-secondary training will continue.** Despite the relatively high percentage of jobs requiring college degree training, there are more than 50,000 jobs in technical areas that require associate's degree training and post secondary vocational

training. Forecasted growth in these occupations exceeds 6,000. Many of these positions are therapy, technology and technician occupations in allied health. Forecast job increases include medical records and health information technicians, radiological technicians, medical and clinical lab technicians and technologists. The District also supports physical and life science research, which has many assistant and technician positions that require AA degree training.

## Introduction

This report presents summary data and discussion of the District of Columbia's 2002-2012 industry and occupational employment projections. These projections are part of the regular cycle of state and regional projections sponsored by the Employment and Training Administration. The projections were developed using the American Labor Market Information System (ALMIS) consortium Projections Suite software and follow ALMIS consortium established methods and procedures for projections. The Projections Suite includes the Long Term Projections (LTP) and MicroMatrix software. Long Term Projections uses statistical routines for projecting long term industry employment from a base year to a

projected year. LTP has shift share analysis, time series estimation and regression analysis to model and forecast current employment survey data. Past trends are used to project forward 10 years based on employment trends as well as trends in the local and national population and labor force.

Industry employment totals from the Long Term Projections are used in the ALMIS consortium's MicroMatrix software to generate occupational projections that distribute each of the industry totals among occupational groups and detailed occupations. The MicroMatrix uses occupational survey data to determine the percentage of an

industry's employment in specific occupations. The final results project totals for 85 North American Industry Classification totals and 594 standard occupational classifications.



# Industry Projections 2002-2012 - District of Columbia

## Employment by Industry

The Washington, D.C. employment forecast for 2002-2012 projects an increase of 67,700 jobs for the decade, or 0.9 percent job growth per year for the District of Columbia. The service sector is already more than 90 percent of District employment, but it will increase another percent or two over the next decade, while the small manufacturing sector continues to decline. Wholesale trade has been declining in recent years, but it is forecast to stabilize. Combined with retail trade, total trade employment should increase modestly, adding 2,000 jobs from its 2002 base of just over 21,000. Transportation jobs are on the decline, although not public transportation jobs, so transportation employment is expected to remain about the same or decline slightly. Federal government employment in the District is forecast to increase more than 5,000 jobs. The federal government share will decline slightly to around 25 percent from its current share of 26.5 percent. District government employment is forecast to decline slightly.

Among services, professional and business services are forecast to have more than 27,000 new jobs, but it started the decade with 139,000 jobs, the biggest employment except for the federal government. Legal services, computer systems design services, and management consulting services are expected to be the biggest gainers with more than 11,000 of the 27,000 new jobs. Accounting services and advertising services are expected to add another 3,000 jobs. Professional and business services includes office administrative services, facilities support services, employment services, and services to buildings. Services to buildings started the decade with nearly 13,000 jobs;

employment services had more than 11,000 jobs. Together they are forecast to have an increase of more than 4,400 jobs. Education continues to be an important segment of the District's economy with more than 45,000 jobs and 6.3 percent of District employment in 2002. College and university employment leads the way with 32,000 jobs at District universities and forecast growth of more than 4,000 new jobs. Elementary and secondary education continues to grow but at a slower pace than college and university employment. It is expected to add another 2.3 thousand jobs.

Health care employment averaged 54,000 in 2002, but total health care employment is growing at less than the District average growth rate. While hospital employment is down slightly from the late 1990's other health care services are increasing at rates slightly higher than the District average. Growth at these rates is expected to create nearly 5,000 new jobs, mostly in ambulatory health services and social assistance.

Other services include repair and maintenance services and personal and laundry services, and private household employment. The primarily non profit sector, officially known as religious, grantmaking, civic, professional and similar organizations, is by far the biggest of this sector's services in the District economy. This industry has 46,000 of the 56,000 thousand jobs in the other services sector. It is expected to grow at above the average rate of 0.9 percent and add almost 6,000 new jobs.

The federal government, business and professional services, education, health care, and other services, mostly non-profits organizations, are the biggest

sectors in the District economy. Together they make up nearly 70 percent of District employment. Among the five remaining service sectors only accommodation and food services is comparable with a 5.9 percent share of employment. Information is 3.5 percent; finance and insurance is 2.7 percent; real estate and rental leasing is 1.5 percent; and arts, entertainment and recreation a mere .76 percent.

Accommodation and food service employment is expected to add about 5,000 jobs. Information employment is forecast to rise by 1,600 jobs, but information includes newspaper publishing; these jobs are declining nationally as well as in the District. Therefore, 1,600 new jobs represents a reallocation into software and Internet publishing from newspaper and print publishing.

The other three sectors are forecast to add 1,300 to 1,700 jobs each. Finance and insurance will maintain a significant but modest presence in District employment. Real estate will continue to be stable with modest growth. Arts, entertainment and recreation may get a boost from Major League Baseball's relocation to the District, but there is no big change or growth on the horizon for these jobs.

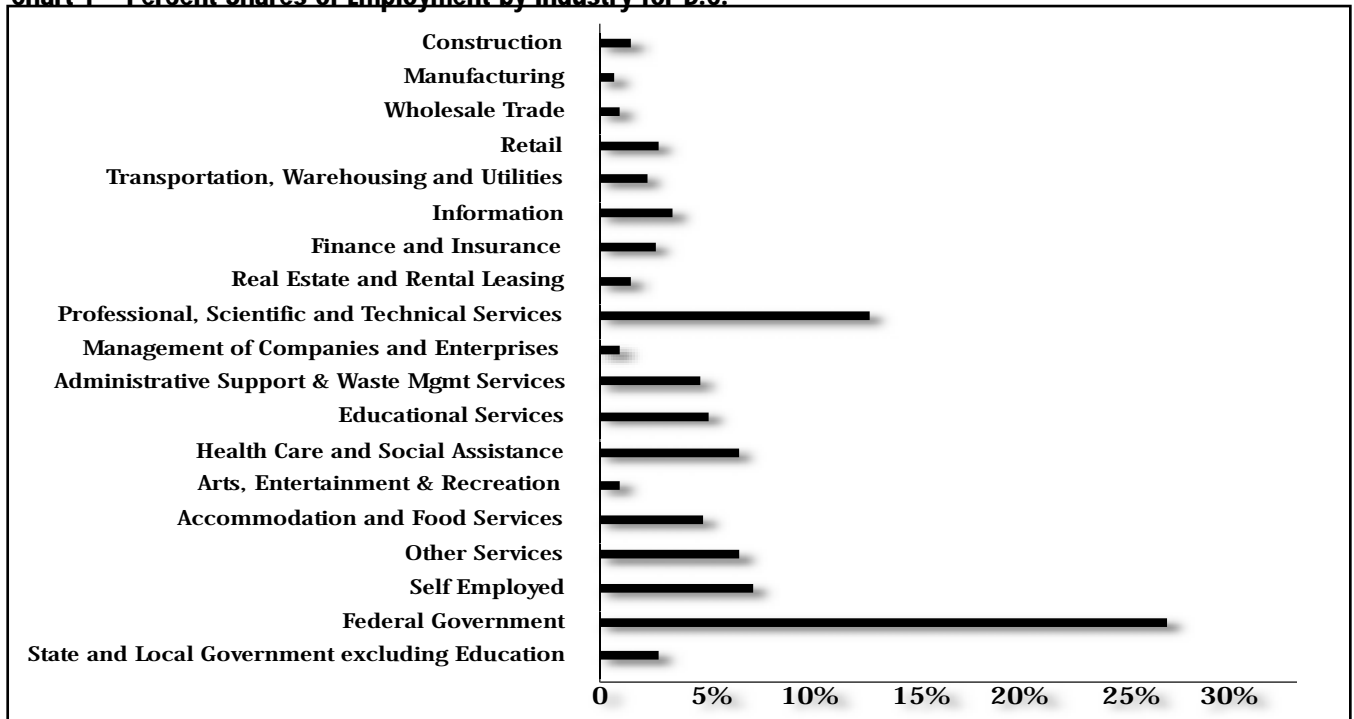
Table 1, Table 2 and Chart 1 all give summary information for the District's employment by industry. The total of growth in the top 40 high growth industries is more than the total of growth for the District. This is because the total includes some industries with declining employment. The top 40 all have growth so their total excludes any declines, hence the higher total.

## Industry Projections 2002-2012 (cont.)

**Table 1**  
**Employment Projections for the District of Columbia and U.S. by Major Industry Group, 2002-2012**

Industry	2002	2012	2002 Share	2012 Share	Growth	Growth Rate
<b>Washington, D.C.</b>						
Total, All Industries	723,977	791,735	100%	100%	67,758	0.90%
Natural Resources	51	58	0.01%	0.01%	7	1.29%
Construction	12,342	14,200	1.70%	1.79%	1858	1.41%
Manufacturing	3048	2098	0.42%	0.26%	-950	-3.67%
Wholesale Trade	4350	4794	0.60%	0.61%	444	0.98%
Retail Trade	17,168	18,808	2.37%	2.38%	1640	0.92%
Transportation, Warehousing and Utilities	12,151	11,859	1.68%	1.50%	-292	-0.24%
Information	25,351	26,952	3.50%	3.40%	1601	0.61%
Finance and Insurance	19,624	21,437	2.71%	2.71%	1813	0.89%
Real Estate and Rental Leasing	11,216	12,611	1.55%	1.59%	1395	1.18%
Professional, Scientific and Technical Services	93,183	112,376	12.87%	14.19%	19,193	1.89%
Management of Companies and Enterprises	2211	1528	0.31%	0.19%	-683	-3.63%
Administrative Support & Waste Mgmt Services	43,783	52,284	6.05%	6.60%	8501	1.79%
Educational Services	45,606	53,157	6.30%	6.71%	7551	1.54%
Health Care and Social Assistance	54,155	58,081	7.48%	7.34%	3926	0.70%
Arts, Entertainment & Recreation	5534	6836	0.76%	0.86%	1302	2.14%
Accommodation and Food Services	42,675	48,290	5.89%	6.10%	5615	1.24%
Other Services	56,083	63,187	7.75%	7.98%	7104	1.20%
Self Employed	59,711	62,891	8.25%	7.94%	3180	0.52%
Federal Government	192,417	198,013	26.58%	25.01%	5596	0.29%
State & Local Government excluding Education and Hospitals	23,318	22,275	3.22%	2.81%	-1043	-0.46%

**Chart 1 – Percent Shares of Employment by Industry for D.C.**





## Industry Projections 2002-2012 (cont.)

**Table 2**  
**High Employment Growth Industries.**

NAICS	Industry Title	Growth	Growth Rate
813000	Religious, Grantmaking, Civic, Professional, and Similar Organizations	5789	1.19%
910000	Federal Government	5596	0.29%
541500	Computer Systems Design and Related Services	4713	3.54%
611300	Colleges, Universities, and Professional Schools	4460	1.53%
541100	Legal Services	4125	1.12%
722000	Food Services and Drinking Places	3219	1.08%
6010	Self-Employed Workers, Primary Job	3180	0.53%
541600	Management, Scientific, and Technical Consulting Services	2671	2.17%
561700	Services to Buildings and Dwellings	2480	1.79%
721000	Accommodation	2396	1.57%
611100	Elementary and Secondary Schools	2326	1.46%
561300	Employment Services	1910	1.59%
624000	Social Assistance	1833	1.64%
541300	Architectural, Engineering, and Related Services	1786	2.48%
541700	Scientific Research and Development Services	1759	1.09%
621000	Ambulatory Health Care Services	1694	1.40%
541800	Advertising and Related Services	1677	2.50%
561600	Investigation and Security Services	1605	1.78%
541200	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1512	2.80%
623000	Nursing and Residential Care Facilities	1414	1.85%
238000	Specialty Trade Contractors	1279	2.09%
531000	Real Estate	1238	1.16%
522000	Credit Intermediation and Related Activities	862	0.98%
561400	Business Support Services	858	2.42%
511200	Software Publishers	835	5.35%
812000	Personal and Laundry Services	740	1.35%
561100	Office Administrative Services	692	1.50%
541900	Other Professional, Scientific, and Technical Services	691	3.01%
713000	Amusement, Gambling, and Recreation Industries	630	2.76%
524000	Insurance Carriers and Related Activities	618	0.89%
814000	Private Households	572	1.35%
711000	Performing Arts, Spectator Sports, and Related Industries	493	1.64%
448000	Clothing and Clothing Accessories Stores	489	1.36%
561200	Facilities Support Services	445	2.89%
518000	Internet Service Providers, Web Search Portals, and Data Processing Services	436	1.35%
611600	Other Schools and Instruction	412	2.65%
517000	Telecommunications	365	0.82%
237000	Heavy and Civil Engineering Construction	343	1.39%
512000	Motion Picture and Sound Recording Industries	320	1.91%
451000	Sporting Goods, Hobby, Book, and Music Stores	309	1.94%

# Occupational Projections 2002-2012 - District of Columbia

## Employment by Occupation

The District has a different distribution of occupations than the U.S. economy. Management, business and financial occupations are 22.5 percent of District employment, an amount more than double the share for the US economy. Professional and related services are 31 percent, which is 60 percent more than the national average. Approximately 23 percent of professional occupations are legal service occupations. Health care practitioner occupations and computer occupations are second and third; each has about 14 percent of professional occupations. Administrative support occupations are two percent above the national average, but otherwise all other occupational categories in the District are below the national average. Construction employment is 35 percent of the national average; production is less than 20 percent of the national average.

Four tables help summarize the District's occupational mix and projected growth of employment. Table 3 has employment, employment shares, growth and growth rates by occupational group. Table 4 shows high demand occupations. The high demand table summarizes openings for the top 40 occupations. Openings are the sum of job growth and net replacements. Job growth is the annual increase in new jobs by occupation. Net replacements are jobs created by people leaving an occupation from retirement, promotion or other causes. Annual openings in the District due to growth and replacements total 22,056. The top 40 occupations account for 48 percent of these openings. More than 60 percent of the top 40 high demand occupations are in three occupational groups: managerial, business and financial occupations, professional and related occupations,

and office and administrative support occupations. Notice that management analysts and lawyers have the two largest projected openings. The District is already a center for office occupations and current trends are projected to continue in that direction.

Table 5 shows the 40 top high growth occupations. Growth is the projected increase in the number of jobs by occupation. The top 40 are forecast to have 58 percent of the total job growth. Again managerial, business and financial occupations, and professional and related occupations lead the way for job growth. Management analyst is the number one growth occupation with nearly 4,000 new jobs forecasted by 2012. Combining the four top computer occupations is also around 4,000 new jobs. Lawyers are in the top 40 group with a thousand new jobs projected, but there are other occupations with higher forecasted numbers. Paralegal and legal assistants are forecast to increase by 1,400 jobs, more than lawyers. General and operations managers, business operations specialists, accountants and auditors are occupations with projected growth in the one to two thousand range. Other occupations in the top 40 complement managerial and professional occupations. Janitors and cleaners, security guards, receptionists and several food service occupations have growth of more than a thousand jobs.

Table 6 has the top 40 growth rate occupations for occupations that have at least 100 jobs. Because growth rates are compound growth in percent for the decade, occupations that start with less than 100 often show a very high growth rate with just a small number of new jobs. To eliminate this tendency the table includes the top 40 with 2002 employment over 100.

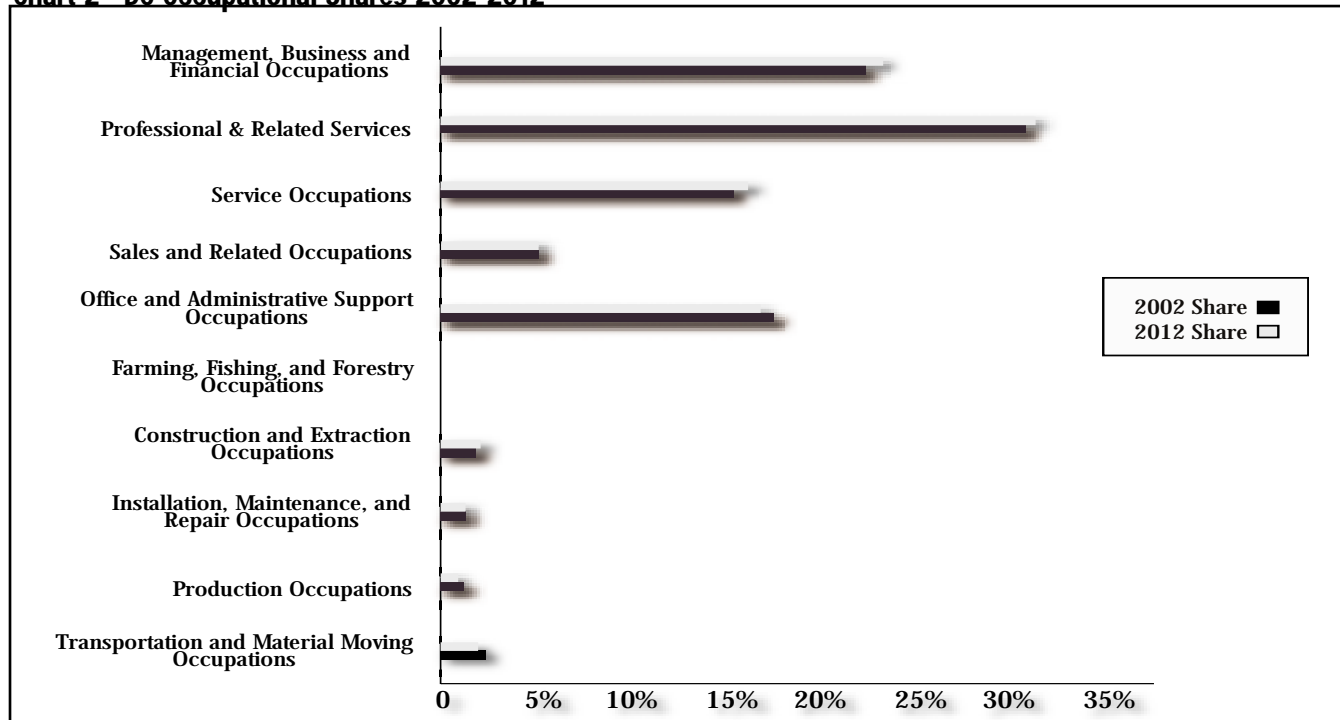
High growth rate occupations have a different mix of occupations than Table 5, but professional and related occupations still dominates the occupations. A number of university faculty specialties show up with forecasted growth rates above 2 percent. Computer occupations are in the high growth group. Environmental engineers that started with a small base are projected to grow at above 3 percent. Only 10 occupations are among the top 40 for both growth and growth rate. Of this group, 5 are computer occupations. Environmental engineers public relations managers and specialists, architects, and social and human service assistants are the other five.

## Occupational Projections 2002-2012 (cont.)

**Table 3**  
**Employment Projections by Major Occupational Group, 2002-2012**

Occupational Group	2002	2012	2002 Share	2012 Share	Growth	Growth Rate
Total, All Occupations	723,977	791,735	100.0%	100.0%	67,758	0.90%
Management, Business and Financial Occupations	162,700	181,180	22.5%	22.9%	18,480	1.08%
Professional & Related Services	224,760	250,600	31.0%	31.7%	25,840	1.09%
Service Occupations	111,525	125,236	15.4%	15.8%	13,711	1.17%
Sales and Related Occupations	36,037	39,192	5.0%	5.0%	3,155	0.84%
Office and Administrative Support Occupations	137,086	140,485	18.9%	17.7%	3,399	0.25%
Farming, Fishing, and Forestry Occupations	150	164	0.0%	0.0%	14	0.90%
Construction and Extraction Occupations	13,213	15,207	1.8%	1.9%	1,994	1.42%
Installation, Maintenance, and Repair Occupations	8,980	9,595	1.2%	1.2%	615	0.66%
Production Occupations	10,011	10,347	1.4%	1.3%	336	0.33%
Transportation and Material Moving Occupations	19,516	19,729	2.7%	2.5%	213	0.11%

**Chart 2– DC Occupational Shares 2002-2012**



# Occupational Projections 2002-2012 (cont.)

**Table 4**  
**Top 40 High Demand Occupations - Washington, D.C.**

SOC	Occupational Group	Ave Annual Openings
	<b>Management, Business &amp; Financial Occupations</b>	<b>2357</b>
11-1011	Chief Executives	212
11-1021	General and Operations Managers	477
11-3011	Administrative Services Managers	242
11-3021	Computer and Information Systems Managers	116
11-3031	Financial Managers	133
13-1111	Management Analysts	798
13-2011	Accountants and Auditors	379
	<b>Professional &amp; Related Occupations</b>	<b>2373</b>
15-1032	Computer Software Engineers, Systems Software	140
15-1041	Computer Support Specialists	145
15-1051	Computer Systems Analysts	295
15-1071	Network and Computer Systems Administrators	109
19-3011	Economists	168
23-1011	Lawyers	615
23-2011	Paralegals and Legal Assistants	212
25-2021	Elementary School Teachers, Except Special Education	141
27-3031	Public Relations Specialists	161
27-3043	Writers and Authors	155
29-1111	Registered Nurses	232
	<b>Service Occupations</b>	<b>2762</b>
33-9032	Security Guards	380
35-2014	Cooks, Restaurant	130
35-2021	Food Preparation Workers	145
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	519
35-3022	Counter Attendants, Cafeteria, Food Concession, & Coffee Shop	132
35-3031	Waiters and Waitresses	467
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	600
37-2012	Maids and Housekeeping Cleaners	247
39-9011	Child Care Workers	142
	<b>Sales &amp; Related Occupations</b>	<b>879</b>
41-2011	Cashiers	386
41-2031	Retail Salespersons	342
41-9022	Real Estate Sales Agents	151
	<b>Office and Administrative Support Occupations</b>	<b>1958</b>
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	242
43-3031	Bookkeeping, Accounting, and Auditing Clerks	111
43-4051	Customer Service Representatives	195
43-4171	Receptionists and Information Clerks	262
43-6011	Executive Secretaries and Administrative Assistants	279
43-6012	Legal Secretaries	206
43-6014	Secretaries, Except Legal, Medical, and Executive	291
43-9061	Office Clerks, General	372
	<b>Installation, maintenance, and repair occupations</b>	<b>113</b>
49-9042	Maintenance and Repair Workers, General	113
	<b>Transportation and Materials Moving Occupations</b>	<b>141</b>
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	141

## Occupational Projections 2002-2012 (cont.)

**Table 5**  
**Top 40 Growth Occupations - Washington, D.C.**

SOC	Occupational Group	2002	2012	Growth	Growth Rate
	<b>Management, Business &amp; Financial Occupations</b>	<b>85,452</b>	<b>97,538</b>	<b>12,086</b>	<b>1.33%</b>
11-1011	Chief Executives	6149	7112	963	1.47%
11-1021	General and Operations Managers	14,612	16,628	2016	1.30%
11-2031	Public Relations Managers	2216	2822	606	2.45%
11-3011	Administrative Services Managers	7476	8442	966	1.22%
11-3021	Computer and Information Systems Managers	3341	3893	552	1.54%
11-3031	Financial Managers	5492	6031	539	0.94%
11-9141	Property, Real Estate, & Community Association Mgrs	2423	2924	501	1.90%
13-1071	Employment, Recruitment, and Placement Specialists	2497	2937	440	1.64%
13-1111	Management Analysts	29,307	33,277	3970	1.28%
13-2011	Accountants and Auditors	11,939	13,472	1533	1.22%
	<b>Professional &amp; Related Occupations</b>	<b>101,682</b>	<b>115,047</b>	<b>13,365</b>	<b>1.24%</b>
15-1031	Computer Software Engineers, Applications	2131	2891	760	3.10%
15-1032	Computer Software Engineers, Systems Software	2405	3562	1157	4.01%
15-1041	Computer Support Specialists	3904	4873	969	2.24%
15-1051	Computer Systems Analysts	12,455	13,999	1544	1.18%
15-1071	Network and Computer Systems Administrators	2644	3441	797	2.67%
15-1081	Network Systems and Data Communications Analysts	1642	2474	832	4.18%
17-1011	Architects, Except Landscape and Naval	2033	2758	725	3.10%
17-2081	Environmental Engineers	2064	2795	731	3.08%
21-1093	Social and Human Service Assistants	2577	3189	612	2.15%
23-1011	Lawyers	39,042	40,178	1136	0.29%
23-2011	Paralegals and Legal Assistants	8433	9879	1446	1.60%
25-2021	Elementary School Teachers, Except Special Education	3932	4469	537	1.29%
27-3031	Public Relations Specialists	4201	5205	1004	2.17%
27-3043	Writers and Authors	5832	6385	553	0.91%
29-1111	Registered Nurses	8387	8949	562	0.65%
	<b>Service Occupations</b>	<b>54,018</b>	<b>61,964</b>	<b>7946</b>	<b>1.38%</b>
33-9032	Security Guards	10,528	12,035	1507	1.35%
35-2021	Food Preparation Workers	2897	3320	423	1.37%
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	8625	10,073	1448	1.56%
35-3031	Waiters and Waitresses	7256	8194	938	1.22%
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	17,117	19,868	2751	1.50%
37-2012	Maids and Housekeeping Cleaners	7595	8474	879	1.10%
	<b>Sales &amp; Related Occupations</b>	<b>19,033</b>	<b>20,879</b>	<b>1846</b>	<b>0.93%</b>
41-2011	Cashiers	6811	7354	543	0.77%
41-2031	Retail Salespersons	7257	8038	781	1.03%
41-9022	Real Estate Sales Agents	4965	5487	522	1.00%
	<b>Office and Administrative Support Occupations</b>	<b>45,320</b>	<b>49,264</b>	<b>3944</b>	<b>0.84%</b>
43-4051	Customer Service Representatives	6225	7249	1024	1.53%
43-4171	Receptionists and Information Clerks	6484	7508	1024	1.48%
43-6011	Executive Secretaries and Administrative Assistants	11,573	12,147	574	0.49%
43-6012	Legal Secretaries	6871	7613	742	1.03%
43-9061	Office Clerks, General	14,167	14,747	580	0.40%
	<b>Installation, maintenance, and repair occupations</b>	<b>3728</b>	<b>4142</b>	<b>414</b>	<b>1.06%</b>
49-9042	Maintenance and Repair Workers, General	3728	4142	414	1.06%

## Occupational Projections 2002-2012 (cont.)

**Table 6**  
**Top 40 Fastest Growing Occupations with Growth over 100 Jobs - Washington, D.C.**

SOC	Occupational Group	2002	2012	Growth	Growth Rate
	<b>Management, Business &amp; Financial Occupations</b>	<b>4973</b>	<b>6306</b>	<b>1333</b>	<b>2.40%</b>
11-2011	Advertising and Promotions Managers	1287	1590	303	2.14%
11-2031	Public Relations Managers	2216	2822	606	2.45%
13-1072	Compensation, Benefits, and Job Analysis Specialists	465	580	115	2.23%
13-2052	Personal Financial Advisors	480	625	145	2.67%
13-2082	Tax Preparers	525	689	164	2.76%
	<b>Professional &amp; Related Occupations</b>	<b>34,352</b>	<b>45,190</b>	<b>10,838</b>	<b>2.78%</b>
15-1031	Computer Software Engineers, Applications	2131	2891	760	3.10%
15-1032	Computer Software Engineers, Systems Software	2405	3562	1157	4.01%
15-1041	Computer Support Specialists	3904	4873	969	2.24%
15-1061	Database Administrators	997	1329	332	2.92%
15-1071	Network and Computer Systems Administrators	2644	3441	797	2.67%
15-1081	Network Systems and Data Communications Analysts	1642	2474	832	4.18%
17-1011	Architects, Except Landscape and Naval	2033	2758	725	3.10%
17-2081	Environmental Engineers	2064	2795	731	3.08%
17-3011	Architectural and Civil Drafters	799	976	177	2.02%
21-1093	Social and Human Service Assistants	2577	3189	612	2.15%
23-2091	Court Reporters	303	420	117	3.32%
25-1011	Business Teachers, Postsecondary	1061	1392	331	2.75%
25-1032	Engineering Teachers, Postsecondary	746	954	208	2.49%
25-1065	Political Science Teachers, Postsecondary	358	469	111	2.74%
25-1066	Psychology Teachers, Postsecondary	384	504	120	2.76%
25-1071	Health Specialties Teachers, Postsecondary	1194	1537	343	2.56%
25-1112	Law Teachers, Postsecondary	823	1098	275	2.92%
25-1121	Art, Drama, and Music Teachers, Postsecondary	894	1174	280	2.76%
25-1123	English Language and Literature Teachers, Postsecondary	813	1049	236	2.58%
25-1126	Philosophy and Religion Teachers, Postsecondary	312	421	109	3.04%
25-2012	Kindergarten Teachers, Except Special Education	524	657	133	2.29%
25-3021	Self-Enrichment Education Teachers	1056	1413	357	2.96%
27-1025	Interior Designers	487	609	122	2.26%
27-3031	Public Relations Specialists	4201	5205	1004	2.17%
	<b>Service Occupations</b>	<b>6086</b>	<b>7874</b>	<b>1788</b>	<b>2.61%</b>
31-1011	Home Health Aides	807	1033	226	2.50%
31-9092	Medical Assistants	954	1252	298	2.76%
33-9021	Private Detectives and Investigators	548	791	243	3.74%
39-9021	Personal and Home Care Aides	1583	1939	356	2.05%
39-9031	Fitness Trainers and Aerobics Instructors	548	807	259	3.95%
39-9041	Residential Advisors	1646	2052	406	2.23%
	<b>Production Occupations</b>	<b>847</b>	<b>1095</b>	<b>248</b>	<b>2.60%</b>
51-8031	Water and Liquid Waste Treatment Plant and System Operators	196	302	106	4.42%
51-9198	Helpers--Production Workers	651	793	142	1.99%

# Occupational Skill Levels

## Employment by Skill level

The Bureau of Labor Statistics (BLS) has developed a skills taxonomy that reflects the training and qualifications associated with data reported within its occupational categories. This taxonomy appears on page 11. The skills taxonomy makes it possible to reorganize industry and occupational projections by skill category. The District of Columbia job mix has more than 40 percent of its employment in the first five skill categories, which are the categories requiring at least a BA degree, but often an advanced degree, or professional degree. Jobs requiring college degree training make up only 20 to 22 percent of jobs in the national economy. The concentration of law firms, lawyers and legal services occupations in the District increases the percentage of jobs requiring professional degree training. It is typically less than 2 percent in the national economic economy but it was above 7 percent for the District in 2002.

Despite the relatively high percentage of jobs requiring college degree training there are more than 50,000 jobs in technical areas that require associate's degree training and post secondary vocational training. Forecasted growth in these occupations exceeds 6,000. Many of these positions are therapy, technology and technician occupations in allied health. Forecast job increases include medical records and health information technicians, radiological technicians and technologists, medical and clinical lab technicians and technologists. The District also supports physical and life science research, which has many assistant and technician positions that require AA degree and other technical training. Table 7 (page 13) gives a summary of District employment and growth by skill category and Chart 3 summarize the skill mix for Washington, DC.

## Skill Categories

The first seven BLS categories give the minimum of formal post-secondary education beyond high school that is required to enter and work in an occupation. The term "required" has a broad use. In some occupations the degree is absolutely necessary and a candidate will not be considered without the required degree. These include occupations where licensing is required by the state or by a private association empowered by the state. Registered nurses must have at least an associate's degree from an approved nursing program to be able to take state required exams. Without this credential entry is blocked. In other occupations, a post-secondary degree is not strictly required but the skills needed before entry are such that a degree is strongly preferred by employers. Candidates without a degree are much less likely to be considered, much less employed. Categories emphasize the sources and length of training preferred by employers. Training might be post-secondary vocational, college, postgraduate or professional education. The duration of training could range from a week or two to many years.

Prior experience and on the job training are part of the skills taxonomy. Category 4 is work experience plus a bachelor's or higher degree, an MBA degree for example. Someone with an MBA in finance will probably be expected to have employment experience before being considered for a managerial position. Categories 8 and 9 describe skills learned through

long-term on-the-job training, or work experience in a similar or related occupation. These jobs do not require a degree beyond high school, but are generally not entry-level jobs. For example, a first line supervisor of retail sales workers, or a supervisor of construction workers will need experience in retail sales or construction to be eligible for a job as a supervisor. These jobs require long term on the job training, meaning more than 12 months of experience. Therefore, entry level skills are a high school degree plus skills learned in another job or lower level job.

Categories 10 and 11 are moderate term and short-term on-the-job training. Moderate term on the job training is classified as skills which take one to 12 months to learn on the job. Short term on the job training is classified as skills which take up to one month, but might be less. Moderate term and short term on the job training skills can be classified as general workforce employment. Therefore, entry level skills into these occupations are a high school degree.

## Occupational Skill Levels (cont.)

**Exhibit 3-Educational Training and Skills Categories**

<b>1. First Professional Degree</b>	Entry into a job in this skill category requires two to four years of degree study beyond a baccalaureate degree. Almost all professionals must pass state licensing exams or private board certification exams to enter practice. Physicians, veterinarians, dentists, lawyers, pharmacists are all examples. Ministers are generally included here although there is not ordinarily board or state certification.
<b>2. Doctorate Degree</b>	Entry into a job in this skill category requires a doctorate following completion of a baccalaureate degree as minimum education for entry. College teaching at four year colleges is an example. A doctorate is also required for many science and medical research positions. Many require licenses and board exams. Medical and biological researchers, physicists, and astronomers are other examples because employment is mostly in research and these require doctorates.
<b>3. Master's Degree</b>	Entry into a job in this skill category typically requires license, certification, credentials or registry in a specialized skill area that requires work beyond a BA degree, leading to a master's degree. Health care professions such as physical therapists, speech-language audiology or pathology, counseling are examples. Librarians are now also included.
<b>4. Master's or Bachelor's degree combined with previous experience</b>	Entry into a job in this skill category requires formal education, but these jobs are usually not accessible without experienced practice in the field at an entry job. Health Services managers usually have experience working in health care in addition to degrees and credentials. Some businesses now require work experience and an MBA before jobs are accessible for entry. Almost all of these jobs have manager in the title.
<b>5. Bachelor's Degree</b>	Entry into a job in this skill category requires a BA or BS degree. In some cases a BA degree in any field is satisfactory to establish reading and computational skills necessary to begin a job. Other jobs need a BA in a particular major to establish skills, credentials or obtain a license.
<b>6. Associate Degree</b>	Entry into a job in this skill category usually requires some formal education such as an educational internship, or co-op program, but leading to an associate's degree. Some employers require graduation from an accredited two year community or junior college program in order to take required licensing exams. Health technician occupations are examples. Some skill types have professional associations with certification or accreditation to help establish skill levels for job entrants. Dental hygienists, licensed practical nursing are examples.



## Occupational Skill Levels (cont.)

### Exhibit 3-Educational Training and Skills Categories (cont.)

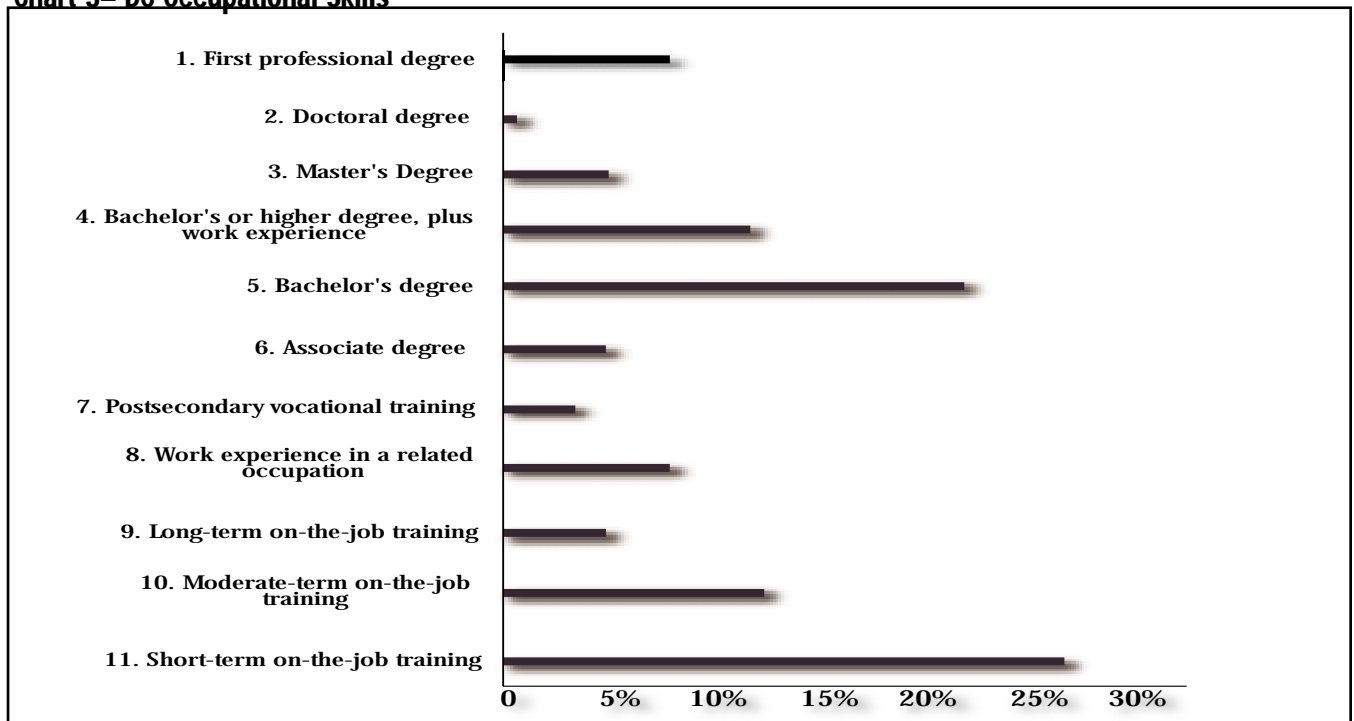
<b>7. Post-secondary Vocational Training</b>	Entry into a job in this skill category requires pre-employment skill training and often a license from a state agency. Barbers, hairstylists, office machine repairers, computer repair specialists and technicians are examples. Employers may provide some on-the-training but entrants must arrive with the skills and certification to do their job.
<b>8. Work Experience in a Related Occupation</b>	Entry into these jobs usually requires that applicants show a high level of skills. These skills can be acquired through degree training, but long term practice, and specialized talents acquired as part of a career in the field are necessary. It is a separate category because degrees and training do not assure entry into these occupations. First line supervisors, police detectives and investigators, adult education instructors are examples.
<b>9. Long-term On-The Job Training</b>	Entry into a job in this skill category typically requires skills acquired from work experience that takes longer than one year. The additional skills needed for the job are taught on the job, through an apprenticeship or employer sponsored classroom instruction or training, and the skills required take a long time or a lot of effort to learn with training of over a year. Actors, athletes, dancers, electricians, carpenters and mechanics are examples. Entry into these jobs are not open to those leaving a degree program or skills training. Prior job relevant skills are necessary for advancement into these positions. For many of these positions a high school degree maybe sufficient but entry is not available to high school graduates. Entry skills are high school plus on the job skills and experience.
<b>10. Moderate-term On-The Job Training</b>	Entry into these jobs usually requires basic reading and language skills learned in high school or a GED program, but additional on-the-job training is usually necessary. Additional skills can be learned quickly, but one to 12 months can be needed to acquire additional skills. Medical assistants, dental assistants, social and human resource assistants are examples.
<b>11. Short-term On-the Job Training</b>	Entry into these jobs usually requires basic reading and language skills learned in high school or a GED program. Work that can be learned from written or verbal instructions, or carried out successfully after a demonstration are classified as high school skills. Additional skills can be learned quickly, typically a month or less of on-the-job experience or instruction. High school degree skills can also be thought of as general workforce skills.

## Occupational Skill Levels (cont.)

**Table 7 - Employment and Growth by Education and Training Category**

Ed Category	Number	2002	2002 Share	2012	2012 Share	Growth	Growth Rate
<b>Washington, D.C.</b>							
1. First professional degree	17	52,734	7.3%	54,800	6.9%	2066	0.39%
2. Doctoral degree	32	6646	0.9%	8057	1.0%	1411	1.94%
3. Master's degree	41	32,016	4.4%	35,220	4.4%	3204	0.96%
4. BA degree, plus work experience	32	88,015	12.2%	99,967	12.6%	11952	1.28%
5. Bachelor's degree	103	136,631	18.9%	154,930	19.6%	18299	1.26%
6. Associate degree	34	29,481	4.1%	33,471	4.2%	3990	1.28%
7. Postsecondary vocational training	46	25,698	3.5%	28,282	3.6%	2584	0.96%
8. Work experience in a related occupation	46	51,487	7.1%	54,575	6.9%	3088	0.58%
9. Long-term on-the-job training	75	30,543	4.2%	32,975	4.2%	2432	0.77%
10. Moderate-term on-the-job training	145	81,494	11.3%	85,137	10.8%	3643	0.44%
11. Short-term on-the-job training	134	189,321	26.1%	204,252	25.8%	14931	0.76%

**Chart 3– DC Occupational Skills**



## Occupational Skill Levels (cont.)

### Wages in occupational groups

The median annual wage for all occupations for the District is \$44,440 (see Table 8 on page 15). (The median annual wage is in the middle with half above and half below the median). The median annual wage reported for the District is part of a distribution of wages for its standard occupational classifications: the 10th percentile, 25th percentile, median, 75th percentile and 90th percentile, which is a regular part of the published data released under BLS direction. The 10th percentile, median and 90th percentile annual wage distribution for all occupations in the District is given in Table 8. The 10th percentile wage of \$18,940.00 means 10 percent earn annual wages less than, or 90 percent earn annual wages greater than, \$18,940.00. At the upper end of the distribution the 90th percentile wage is \$107,280.00. The 90th percentile wage assures 90 percent earn annual wages less than \$107,280.00, but 10 percent earn more.



## Occupational Skill Levels (cont.)

**Table 8**  
**Washington DC Annual wages by Occupational Group**

SOC	Occupational Title	10th Percentile Annual Wage	Median Annual Wage	90th percentile Annual Wage
00-0000	All Occupations	\$18,940.00	\$44,440.00	\$107,280.00
	<b>Management, Business &amp; Financial Occupations</b>			
11-0000	Management occupations	\$41,590.00	\$87,590.00	\$144,180.00
13-0000	Business & financial operations occupations	\$37,090.00	\$65,280.00	\$106,570.00
	<b>Professional &amp; Related Occupations</b>			
15-0000	Computer and mathematical occupations	\$39,180.00	\$68,960.00	\$104,020.00
17-0000	Architecture and engineering occupations	\$37,460.00	\$69,890.00	\$111,080.00
19-0000	Life, physical, and social science occupations	\$36,840.00	\$75,410.00	\$118,810.00
21-0000	Community and social services occupations	\$20,950.00	\$36,320.00	\$60,070.00
23-0000	Legal occupations	\$34,080.00	\$97,450.00	\$145,600.00
25-0000	Education, training, and library occupations	\$21,710.00	\$44,910.00	\$88,330.00
27-0000	Arts, design, entertainment, sports, & media occupations	\$29,340.00	\$52,850.00	\$88,440.00
29-0000	Healthcare practitioners & technical occupations	\$32,270.00	\$52,250.00	\$105,750.00
	<b>Service Occupations</b>			
31-0000	Healthcare support occupations	\$17,510.00	\$25,240.00	\$38,000.00
33-0000	Protective service occupations	\$15,120.00	\$35,700.00	\$78,000.00
35-0000	Food preparation & serving related occupations	\$13,860.00	\$17,990.00	\$28,860.00
37-0000	Building and grounds cleaning & maintenance occupations	\$15,280.00	\$22,300.00	\$29,110.00
39-0000	Personal care and service occupations	\$14,630.00	\$21,050.00	\$40,330.00
	<b>Sales &amp; Related Occupations</b>			
41-0000	Sales and related occupations	\$15,710.00	\$26,650.00	\$68,200.00
	<b>Office and Administrative Support Occupations</b>			
43-0000	Office and administrative support occupations	\$21,840.00	\$35,760.00	\$70,020.00
	<b>Construction Occupations</b>			
47-0000	Construction and extraction occupations	\$23,810.00	\$41,040.00	\$62,310.00
	<b>Installation, Maintenance &amp; Repair Occupations</b>			
49-0000	Installation, maintenance, and repair occupations	\$22,970.00	\$40,990.00	\$61,160.00
	<b>Production Occupations</b>			
51-0000	Production occupations	\$15,650.00	\$35,450.00	\$65,340.00
	<b>Transportation and Materials Moving Occupations</b>			
53-0000	Transportation and material moving occupations	\$15,090.00	\$24,730.00	\$43,850.00

### Standard Occupational Classifications

The SOC is a four level hierarchy of occupations that uses a six digit code for purposes of classification and data reporting.

The first two digits are for major group classifications. There are 23 major groups and major groups are coded to end with four zeros. The third digit of the code is used to designate 96 minor groups which are subgroups of the 23 major groups. Minor group codes end with three zeros. The fourth and fifth digits of the code designate 449 broad occupations which are subgroups of the minor groups. Broad occupation codes end with one zero. Finally, the sixth digit in the code designates one of 821 detailed occupations. Detailed occupations never end with zeros, although they may have a zero in them.

The 23rd major group and its three minor groups, three broad occupations and 22 detailed occupations are military occupations only. Sometimes in the minor groups, as is the case with the military, there is only one broad occupation. In other broad occupations there might be only one detailed occupation.

After allowing for the military, there are 799 detailed domestic occupations. For example, occupational therapists are in the Major group, code 29-0000, which is Healthcare Practitioners and Technical Occupations, and a minor group, code 29-1000, which is Health Diagnosing and Treating Practitioners, and a broad occupation, code 29-1120, which is therapists. Finally, the detailed occupation, code 29-1122, is occupational therapist. Where there is a 9 in the code it is a residual occupation containing all occupations within a major, minor or broad group that are typically classified as other.



## Appendix (cont.)

The data collected and reported under the Standard Classification System is grouped under non-coded headings for occupational coverage reported by BLS in its Occupational Outlook Handbook. The 22 SOC major groups (which excludes the military) are subheadings under the ten Occupational categories (below). The first headings have multiple SOC categories.

1. Management, Business and Financial Operations Occupations
  - 11-0000 Management Occupations
  - 13-0000 Business and Financial Operations Occupations
2. Professional and Related Occupations
  - 15-0000 Computer and Mathematical Occupations
  - 17-0000 Architecture and Engineering Occupations
  - 19-0000 Life, Physical, and Social Science Occupations
  - 21-0000 Community and Social Service Occupations
  - 23-0000 Legal Occupations
  - 25-0000 Education, Training and Library Occupations
  - 27-0000 Arts, Design, Entertainment, Sports, and Media Occupations
  - 29-0000 Healthcare Practitioners and Technical Occupations
3. Service Occupations
  - 31-0000 Health Support Occupations
  - 33-0000 Protective Service Occupations
  - 35-0000 Food Preparation and Serving Related Occupations
  - 37-0000 Building and Grounds Cleaning and Maintenance Occupations
  - 39-0000 Personal Care and Service Occupations
4. Sales and Related Occupations
  - 41-0000 Sales and Related Occupations
5. Office and Administrative Support Occupations
  - 43-0000 Office and Administrative Support Occupations
6. Farming, Fishing, and Forestry Occupations
  - 45-0000 Farming, Fishing and Forestry Occupations
7. Construction Trades and Related Workers
  - 47-0000 Construction and Extraction Occupations
8. Installation, Maintenance and Repair Occupations
  - 49-0000 Installation, Maintenance and Repair Occupations
9. Production Occupations
  - 51-0000 Production Occupations
10. Transportation and Material Moving Occupations
  - 53-0000 Transportation and Material Moving Occupations

In order to ensure that all users of occupational data classify workers the same way, specific principles of data collection are followed. Data covers all work done for pay or profit including uncompensated family members working in a family business. Occupations are classified based upon work performed, skills, education, training, and credentials. Workers that may be classified in more than one occupation are reported in the occupation with the highest skill. If skills are equal, employment is reported where they spend the most time.

## Appendix (cont.)

**Appendix Table 1 – D.C. Industry Detail**

NAICS	Industry Title	2002	2012	Percent of 2002	Growth	Growth Rate
0000	Total, All Industries	723,977	791,735	100.00%	67,758	0.90%
210000	Mining	51	58	0.01%	7	1.29%
221000	Utilities	3293	3395	0.45%	102	0.31%
236000	Construction of Buildings	4471	4707	0.62%	236	0.52%
237000	Heavy and Civil Engineering Construction	2319	2662	0.32%	343	1.39%
238000	Specialty Trade Contractors	5552	6831	0.77%	1279	2.09%
310000	Manufacturing	3048	2098	0.42%	-950	-3.67%
423000	Merchant Wholesalers, Durable Goods	2132	2437	0.29%	305	1.35%
424000	Merchant Wholesalers, Nondurable Goods	1885	1986	0.26%	101	0.52%
425000	Wholesale Electronic Markets & Agents & Brokers	333	371	0.05%	38	1.09%
441000	Motor Vehicle and Parts Dealers	531	607	0.07%	76	1.35%
442000	Furniture and Home Furnishings Stores	675	746	0.09%	71	1.01%
443000	Electronics and Appliance Stores	554	517	0.08%	-37	-0.69%
444000	Building Material & Garden Equipment & Supplies Dealers	700	753	0.10%	53	0.73%
445000	Food and Beverage Stores	5168	5072	0.71%	-96	-0.19%
446000	Health and Personal Care Stores	1915	2183	0.26%	268	1.32%
447000	Gasoline Stations	545	673	0.08%	128	2.13%
448000	Clothing and Clothing Accessories Stores	3370	3859	0.47%	489	1.36%
451000	Sporting Goods, Hobby, Book, and Music Stores	1462	1771	0.20%	309	1.94%
452000	General Merchandise Stores	532	797	0.07%	265	4.12%
453000	Miscellaneous Store Retailers	1582	1708	0.22%	126	0.77%
454000	Nonstore Retailers	134	122	0.02%	-12	-0.93%
481000	Air Transportation	230	121	0.03%	-109	-6.22%
482000	Rail Transportation	341	307	0.05%	-34	-1.04%
483000	Water Transportation	159	118	0.02%	-41	-2.94%
484000	Truck Transportation	242	157	0.03%	-85	-4.23%
485000	Transit and Ground Passenger Transport	6013	6187	0.83%	174	0.29%
488000	Support Activities for Transportation	567	404	0.08%	-163	-3.33%
492000	Couriers and Messengers	790	803	0.11%	13	0.16%
493000	Warehousing and Storage	516	367	0.07%	-149	-3.35%
511100	Newspaper, Periodical, Book, and Directory Publishers	8301	7347	1.15%	-954	-1.21%
511200	Software Publishers	1221	2056	0.17%	835	5.35%
512000	Motion Picture and Sound Recording Industries	1534	1854	0.21%	320	1.91%
515000	Broadcasting (except Internet)	4738	5041	0.65%	303	0.62%
516000	Internet Publishing and Broadcasting	75	66	0.01%	-9	-1.27%
517000	Telecommunications	4313	4678	0.60%	365	0.82%
518000	Internet Service Providers, Web Search Portals, and Data Processing Services	3041	3477	0.42%	436	1.35%
519000	Other Information Services	2128	2433	0.29%	305	1.35%
522000	Credit Intermediation and Related Activities	8381	9243	1.16%	862	0.98%
523000	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	3189	3308	0.44%	119	0.37%
524000	Insurance Carriers and Related Activities	6686	7304	0.92%	618	0.89%

## Appendix (cont.)

**Appendix Table 1 – D.C. Industry Detail (cont.)**

NAICS	Industry Title	2002	2012	Percent of 2002	Growth	Growth Rate
525000	Funds, Trusts, and Other Financial Vehicles	1368	1582	0.19%	214	1.46%
531000	Real Estate	10,120	11,358	1.40%	1238	1.16%
532000	Rental and Leasing Services	1096	1253	0.15%	157	1.35%
541100	Legal Services	35,065	39,190	4.84%	4125	1.12%
541200	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	4759	6271	0.66%	1512	2.80%
541300	Architectural, Engineering, and Related Services	6434	8220	0.89%	1786	2.48%
541400	Specialized Design Services	1046	1305	0.14%	259	2.24%
541500	Computer Systems Design and Related Services	11,346	16,059	1.57%	4713	3.54%
541600	Management, Scientific, and Technical Consulting Services	11,178	13,849	1.54%	2671	2.17%
541700	Scientific Research and Development Services	15,364	17,123	2.12%	1759	1.09%
541800	Advertising and Related Services	5989	7666	0.83%	1677	2.50%
541900	Other Professional, Scientific, and Technical Services	2002	2693	0.28%	691	3.01%
550000	Management of Companies and Enterprises	2211	1528	0.31%	-683	-3.63%
561100	Office Administrative Services	4298	4990	0.59%	692	1.50%
561200	Facilities Support Services	1350	1795	0.19%	445	2.89%
561300	Employment Services	11,200	13,110	1.55%	1910	1.59%
561400	Business Support Services	3181	4039	0.44%	858	2.42%
561500	Travel Arrangement and Reservation Services	1589	1894	0.22%	305	1.77%
561600	Investigation and Security Services	8296	9901	1.15%	1605	1.78%
561700	Services to Buildings and Dwellings	12,800	15,280	1.77%	2480	1.79%
561900	Other Support Services	572	682	0.08%	110	1.77%
562000	Waste Management and Remediation Service	497	593	0.07%	96	1.78%
611100	Elementary and Secondary Schools	14,890	17,216	2.06%	2326	1.46%
611300	Colleges, Universities, and Professional Schools	27,274	31,734	3.77%	4460	1.53%
611400	Business Schools & Computer & Management Training	1003	1175	0.14%	172	1.60%
611500	Technical and Trade Schools	122	143	0.02%	21	1.60%
611600	Other Schools and Instruction	1380	1792	0.19%	412	2.65%
611700	Educational Support Services	937	1097	0.13%	160	1.59%
621000	Ambulatory Health Care Services	11,365	13,059	1.57%	1694	1.40%
622000	Hospitals	25,392	24,377	3.51%	-1015	-0.41%
623000	Nursing and Residential Care Facilities	7024	8438	0.97%	1414	1.85%
624000	Social Assistance	10,374	12,207	1.43%	1833	1.64%
711000	Performing Arts, Spectator Sports, and Related Industries	2785	3278	0.38%	493	1.64%
712000	Museums, Historical Sites, and Similar Institution	736	915	0.10%	179	2.20%
713000	Amusement, Gambling, and Recreation Industries	2013	2643	0.28%	630	2.76%
721000	Accommodation	14,170	16,566	1.96%	2396	1.57%
722000	Food Services and Drinking Places	28,505	31,724	3.94%	3219	1.08%
811000	Repair and Maintenance	792	795	0.11%	3	0.04%
812000	Personal and Laundry Services	5165	5905	0.71%	740	1.35%
813000	Religious, Grantmaking, Civic, Professional, and Similar Organizations	46,132	51,921	6.37%	5789	1.19%



## Appendix (cont.)

**Appendix Table 1 – D.C. Industry Detail (cont.)**

<b>NACIS</b>	<b>Industry Title</b>	<b>2002</b>	<b>2012</b>	<b>Percent of 2000</b>	<b>Growth</b>	<b>Growth Rate</b>
814000	Private Households	3994	4566	0.55%	572	1.35%
6010	Self-Employed Workers, Primary Job	59,137	62,317	8.17%	3180	0.53%
7010	Unpaid Family Workers, Primary Job	574	574	0.08%	0	0.00%
910000	Federal Government	192,417	198,013	26.58%	5596	0.29%
999200	State Government, Excluding Education and Hospitals	23,318	22,275	3.22%	-1043	-0.46%

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
00-0000	Total, All Occupations	723,977	791,735	67,758	0.90%	22056
11-0000	Management Occupations	76,455	85,767	9312	1.16%	2366
11-1011	Chief Executives	6149	7112	963	1.47%	212
11-1021	General and Operations Managers	14,612	16,628	2016	1.30%	477
11-1031	Legislators	***	***	***	***	***
11-2011	Advertising and Promotions Managers	1287	1590	303	2.14%	54
11-2021	Marketing Managers	1787	2134	347	1.79%	68
11-2022	Sales Managers	1069	1299	230	1.97%	43
11-2031	Public Relations Managers	2216	2822	606	2.45%	99
11-3011	Administrative Services Managers	7476	8442	966	1.22%	242
11-3021	Computer and Information Systems Managers	3341	3893	552	1.54%	116
11-3031	Financial Managers	5492	6031	539	0.94%	133
11-3040	Human Resources Managers	2694	2989	295	1.04%	75
11-3051	Industrial Production Managers	91	96	5	0.54%	2
11-3061	Purchasing Managers	982	1013	31	0.31%	24
11-3071	Transportation, Storage, and Distribution Mgrs	718	740	22	0.30%	16
11-9021	Construction Managers	896	1075	179	1.84%	34
11-9031	Education Administrators, Preschool & Child Care Center/Program	239	272	33	1.30%	9
11-9032	Education Administrators, Elementary & Secondary School	1398	1685	287	1.88%	63
11-9033	Education Administrators, Postsecondary	555	656	101	1.69%	24
11-9039	Education Administrators, All Other	276	288	12	0.43%	8
11-9041	Engineering Managers	2198	2357	159	0.70%	60
11-9051	Food Service Managers	1330	1469	139	1.00%	36
11-9061	Funeral Directors	59	61	2	0.33%	2
11-9081	Lodging Managers	291	338	47	1.51%	10
11-9111	Medical and Health Services Managers	1345	1468	123	0.88%	39
11-9121	Natural Sciences Managers	1225	1305	80	0.63%	32
11-9141	Property, Real Estate, and Community Association Managers	2423	2924	501	1.90%	95
11-9151	Social and Community Service Managers	2380	2721	341	1.35%	80
11-9199	Managers, All Other	***	***	***	***	***
13-0000	Business and Financial Operations Occupations	86,245	95,413	9168	1.02%	2352
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	122	157	35	2.55%	6
13-1022	Wholesale and Retail Buyers, Except Farm Products	284	291	7	0.24%	8
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	3566	3731	165	0.45%	105
13-1031	Claims Adjusters, Examiners, and Investigators	539	590	51	0.91%	12
13-1041	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	2857	3000	143	0.49%	82
13-1051	Cost Estimators	289	331	42	1.37%	11
13-1061	Emergency Management Specialists	***	***	***	***	***
13-1071	Employment, Recruitment, and Placement Specialists	2497	2937	440	1.64%	82
13-1072	Compensation, Benefits, and Job Analysis Specialists	465	580	115	2.23%	19
13-1073	Training and Development Specialists	2121	2426	305	1.35%	63

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

<b>SOC</b>	<b>Occupational Title</b>	<b>2002</b>	<b>2012</b>	<b>Growth</b>	<b>Growth Rate</b>	<b>Annual Openings</b>
13-1111	Management Analysts	29,307	33,277	3970	1.28%	798
13-1121	Meeting and Convention Planners	1426	1681	255	1.66%	57
13-1199	Business Operations Specialists, All Other	19,839	20,985	1146	0.56%	452
13-2011	Accountants and Auditors	11,939	13,472	1533	1.22%	379
13-2021	Appraisers and Assessors of Real Estate	196	230	34	1.61%	8
13-2031	Budget Analysts	2705	2792	87	0.32%	53
13-2041	Credit Analysts	***	***	***	***	***
13-2051	Financial Analysts	1915	2164	249	1.23%	53
13-2052	Personal Financial Advisors	480	625	145	2.67%	21
13-2053	Insurance Underwriters	281	310	29	0.99%	8
13-2061	Financial Examiners	***	***	***	***	***
13-2071	Loan Counselors	89	100	11	1.17%	3
13-2072	Loan Officers	576	618	42	0.71%	14
13-2081	Tax Examiners, Collectors, and Revenue Agents	***	***	***	***	***
13-2082	Tax Preparers	525	689	164	2.76%	25
13-2099	Financial Specialists, All Other	3120	3245	125	0.39%	67
<b>15-0000</b>	<b>Computer and Mathematical Occupations</b>	<b>33,191</b>	<b>40,245</b>	<b>7054</b>	<b>1.95%</b>	<b>1148</b>
15-1011	Computer and Information Scientists, Research	519	631	112	1.97%	17
15-1021	Computer Programmers	3269	3414	145	0.43%	92
15-1031	Computer Software Engineers, Applications	2131	2891	760	3.10%	97
15-1032	Computer Software Engineers, Systems Software	2405	3562	1157	4.01%	140
15-1041	Computer Support Specialists	3904	4873	969	2.24%	145
15-1051	Computer Systems Analysts	12,455	13,999	1544	1.18%	295
15-1061	Database Administrators	997	1329	332	2.92%	44
15-1071	Network and Computer Systems Administrators	2644	3441	797	2.67%	109
15-1081	Network Systems and Data Communications Analysts	1642	2474	832	4.18%	103
15-1099	Computer Specialists, All Other	***	***	***	***	***
15-2011	Actuaries	183	198	15	0.79%	9
15-2021	Mathematicians	59	61	2	0.33%	3
15-2031	Operations Research Analysts	1098	1148	50	0.45%	29
15-2041	Statisticians	1060	1089	29	0.27%	31
15-2099	Mathematical Science Occupations, All Other	***	***	***	***	***
<b>17-0000</b>	<b>Architecture and Engineering Occupations</b>	<b>16,114</b>	<b>18,774</b>	<b>2660</b>	<b>1.54%</b>	<b>590</b>
17-1011	Architects, Except Landscape and Naval	2033	2758	725	3.10%	96
17-1012	Landscape Architects	153	199	46	2.66%	6
17-1021	Cartographers and Photogrammetrists	99	135	36	3.15%	7
17-1022	Surveyors	278	318	40	1.35%	14
17-2011	Aerospace Engineers	238	245	7	0.29%	7
17-2031	Biomedical Engineers	52	55	3	0.56%	1
17-2041	Chemical Engineers	135	148	13	0.92%	5
17-2051	Civil Engineers	1076	1197	121	1.07%	29
17-2061	Computer Hardware Engineers	918	1046	128	1.31%	28
17-2071	Electrical Engineers	859	972	113	1.24%	28
17-2072	Electronics Engineers, Except Computer	1431	1500	69	0.47%	35
17-2081	Environmental Engineers	2064	2795	731	3.08%	108
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	172	179	7	0.40%	5

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
17-2112	Industrial Engineers	215	249	34	1.48%	9
17-2121	Marine Engineers and Naval Architects	***	***	***	***	***
17-2131	Materials Engineers	72	74	2	0.27%	2
17-2141	Mechanical Engineers	844	907	63	0.72%	29
17-2161	Nuclear Engineers	***	***	***	***	***
17-2171	Petroleum Engineers	38	39	1	0.26%	1
17-2199	Engineers, All Other	2270	2369	99	0.43%	53
17-3011	Architectural and Civil Drafters	799	976	177	2.02%	40
17-3012	Electrical and Electronics Drafters	65	69	4	0.60%	2
17-3013	Mechanical Drafters	25	27	2	0.77%	1
17-3021	Aerospace Engineering and Operations Technicians	52	56	4	0.74%	2
17-3022	Civil Engineering Technicians	326	351	25	0.74%	9
17-3023	Electrical and Electronic Engineering Technicians	656	724	68	0.99%	21
17-3024	Electro-Mechanical Technicians	43	49	6	1.31%	2
17-3025	Environmental Engineering Technicians	91	122	31	2.98%	5
17-3026	Industrial Engineering Technicians	53	72	19	3.11%	3
17-3027	Mechanical Engineering Technicians	47	56	9	1.77%	2
17-3031	Surveying and Mapping Technicians	35	44	9	2.31%	2
17-3099	Drafters, Engineering, and Mapping Technicians, All Other (OES Only)	535	566	31	0.56%	16
<b>19-0000</b>	<b>Life, Physical, and Social Science Occupations</b>	<b>25,389</b>	<b>27,030</b>	<b>1641</b>	<b>0.63%</b>	<b>767</b>
19-1010	Agricultural and Food Scientists	186	189	3	0.16%	4
19-1021	Biochemists and Biophysicists	70	78	8	1.09%	3
19-1022	Microbiologists	146	151	5	0.34%	5
19-1023	Zoologists and Wildlife Biologists	251	264	13	0.51%	9
19-1031	Conservation Scientists	104	107	3	0.28%	3
19-1032	Foresters	48	49	1	0.21%	2
19-1041	Epidemiologists	20	21	1	0.49%	1
19-1042	Medical Scientists, Except Epidemiologists	727	829	102	1.32%	23
19-1099	Life Scientists, All Other	943	998	55	0.57%	22
19-2011	Astronomers	114	118	4	0.35%	4
19-2012	Physicists	776	799	23	0.29%	27
19-2021	Atmospheric and Space Scientists	33	35	2	0.59%	2
19-2031	Chemists	624	660	36	0.56%	24
19-2032	Materials Scientists	26	28	2	0.74%	1
19-2041	Environmental Scientists and Specialists, Including Health	1365	1431	66	0.47%	31
19-2042	Geoscientists, Except Hydrologists and Geographers	128	135	7	0.53%	3
19-2043	Hydrologists	129	168	39	2.68%	6
19-2099	Physical Scientists, All Other	946	971	25	0.26%	24
19-3011	Economists	4694	5015	321	0.66%	168
19-3021	Market Research Analysts	1944	2141	197	0.97%	70
19-3022	Survey Researchers	325	367	42	1.22%	13
19-3031	Clinical, Counseling, and School Psychologists	585	654	69	1.12%	20
19-3032	Industrial-Organizational Psychologists	55	59	4	0.70%	2
19-3041	Sociologists	146	165	19	1.23%	7
19-3051	Urban and Regional Planners	245	279	34	1.31%	12
19-3091	Anthropologists and Archeologists	257	294	37	1.35%	9

## Appendix (cont.)

Appendix Table II – D.C. Occupational Detail

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
19-3092	Geographers	16	18	2	1.18%	1
19-3093	Historians	366	381	15	0.40%	9
19-3094	Political Scientists	3905	4041	136	0.34%	92
19-3099	Social Scientists and Related Workers, All Other	3973	4140	167	0.41%	101
19-4021	Biological Technicians	269	300	31	1.10%	8
19-4031	Chemical Technicians	94	122	28	2.64%	5
19-4091	Environmental Science and Protection Technicians, Including Health	84	106	22	2.35%	4
19-4092	Forensic Science Technicians	26	27	1	0.38%	1
19-4099	Life, Physical, and Social Science Technicians, All Other	1768	1889	121	0.66%	54
<b>21-0000</b>	<b>Community and Social Services Occupations</b>	<b>10,781</b>	<b>12,356</b>	<b>1575</b>	<b>1.37%</b>	<b>360</b>
21-1011	Substance Abuse and Behavioral Disorder Counselors	740	801	61	0.80%	23
21-1012	Educational, Vocational, and School Counselors	476	505	29	0.59%	14
21-1013	Marriage and Family Therapists	39	41	2	0.50%	1
21-1014	Mental Health Counselors	810	905	95	1.12%	28
21-1015	Rehabilitation Counselors	637	701	64	0.96%	21
21-1021	Child, Family, and School Social Workers	1105	1197	92	0.80%	28
21-1022	Medical and Public Health Social Workers	499	524	25	0.49%	11
21-1023	Mental Health and Substance Abuse Social Workers	566	652	86	1.42%	18
21-1091	Health Educators	378	387	9	0.24%	8
21-1093	Social and Human Service Assistants	2577	3189	612	2.15%	107
21-2011	Clergy	796	857	61	0.74%	22
21-2021	Directors, Religious Activities and Education	***	***	***	***	***
21-9099	Counselors, Social, and Religious Workers, All Other (OES Only)	***	***	***	***	***
<b>23-0000</b>	<b>Legal Occupations</b>	<b>52,208</b>	<b>55,065</b>	<b>2857</b>	<b>0.53%</b>	<b>908</b>
23-1011	Lawyers	39,042	40,178	1136	0.29%	615
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	379	387	8	0.21%	6
23-1022	Arbitrators, Mediators, and Conciliators	36	41	5	1.31%	1
23-2011	Paralegals and Legal Assistants	8433	9879	1446	1.60%	212
23-2091	Court Reporters	303	420	117	3.32%	15
23-2092	Law Clerks	1940	2007	67	0.34%	28
23-2093	Title Examiners, Abstractors, and Searchers	83	78	-5	-0.62%	1
23-9099	Legal and Related Workers, All Other (OES Only)	1987	2071	84	0.41%	30
<b>25-0000</b>	<b>Education, Training, and Library Occupations</b>	<b>26,879</b>	<b>32,127</b>	<b>5248</b>	<b>1.80%</b>	<b>1095</b>
25-1011	Business Teachers, Postsecondary	1061	1392	331	2.75%	57
25-1021	Computer Science Teachers, Postsecondary	174	227	53	2.69%	9
25-1022	Mathematical Science Teachers, Postsecondary	277	354	77	2.48%	14
25-1031	Architecture Teachers, Postsecondary	74	92	18	2.20%	4
25-1032	Engineering Teachers, Postsecondary	746	954	208	2.49%	38
25-1042	Biological Science Teachers, Postsecondary	212	268	56	2.37%	10
25-1043	Forestry and Conservation Science Teachers, Postsecondary	66	76	10	1.42%	3
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	13	16	3	2.10%	1

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
25-1052	Chemistry Teachers, Postsecondary	136	175	39	2.55%	7
25-1053	Environmental Science Teachers, Postsecondary	55	70	15	2.44%	3
25-1054	Physics Teachers, Postsecondary	150	195	45	2.66%	8
25-1061	Anthropology and Archeology Teachers, Postsecondary	73	94	21	2.56%	4
25-1063	Economics Teachers, Postsecondary	147	191	44	2.65%	8
25-1064	Geography Teachers, Postsecondary	37	48	11	2.64%	2
25-1065	Political Science Teachers, Postsecondary	358	469	111	2.74%	19
25-1066	Psychology Teachers, Postsecondary	384	504	120	2.76%	21
25-1067	Sociology Teachers, Postsecondary	112	146	34	2.69%	6
25-1071	Health Specialties Teachers, Postsecondary	1194	1537	343	2.56%	61
25-1072	Nursing Instructors and Teachers, Postsecondary	81	92	11	1.28%	3
25-1081	Education Teachers, Postsecondary	297	393	96	2.84%	16
25-1082	Library Science Teachers, Postsecondary	30	38	8	2.39%	2
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	32	41	9	2.51%	2
25-1112	Law Teachers, Postsecondary	823	1098	275	2.92%	46
25-1113	Social Work Teachers, Postsecondary	44	57	13	2.62%	2
25-1121	Art, Drama, and Music Teachers, Postsecondary	894	1174	280	2.76%	48
25-1122	Communications Teachers, Postsecondary	124	161	37	2.65%	7
25-1123	English Language and Literature Teachers, Postsecondary	813	1049	236	2.58%	42
25-1124	Foreign Language and Literature Teachers, Postsecondary	144	191	47	2.86%	8
25-1125	History Teachers, Postsecondary	212	277	65	2.71%	11
25-1126	Philosophy and Religion Teachers, Postsecondary	312	421	109	3.04%	18
25-1191	Graduate Teaching Assistants	216	273	57	2.37%	11
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	118	151	33	2.50%	6
25-1194	Vocational Education Teachers, Postsecondary	42	61	19	3.80%	3
25-1199	Postsecondary Teachers, All Other	10	13	3	2.66%	1
25-2011	Preschool Teachers, Except Special Education	1496	1763	267	1.66%	45
25-2012	Kindergarten Teachers, Except Special Education	524	657	133	2.29%	20
25-2021	Elementary School Teachers, Except Special Education	3932	4469	537	1.29%	141
25-2022	Middle School Teachers, Except Special and Vocational Education	1593	1722	129	0.78%	48
25-2023	Vocational Education Teachers, Middle School	49	53	4	0.79%	2
25-2031	Secondary School Teachers, Except Special and Vocational Education	895	1050	155	1.61%	41
25-2032	Vocational Education Teachers, Secondary School	***	***	***	***	***
25-2041	Special Education Teachers, Preschool, Kindergarten, and Elementary School	84	107	23	2.45%	4
25-2042	Special Education Teachers, Middle School	59	74	15	2.29%	3
25-2043	Special Education Teachers, Secondary School	130	169	39	2.66%	7
25-3011	Adult Literacy, Remedial Education, and GED Teachers and Instructors	375	448	73	1.79%	12
25-3021	Self-Enrichment Education Teachers	1056	1413	357	2.96%	49

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
25-3999	Teachers, Primary, Secondary, and Adult, All Other (OES Only)	972	1025	53	0.53%	17
25-4010	Archivists, Curators, and Museum Technicians	1015	1048	33	0.32%	26
25-4021	Librarians	1784	1901	117	0.64%	54
25-4031	Library Technicians	1048	1154	106	0.97%	49
25-9011	Audio-Visual Collections Specialists	97	104	7	0.70%	2
25-9021	Farm and Home Management Advisors	25	22	-3	-1.27%	0
25-9031	Instructional Coordinators	415	478	63	1.42%	13
25-9041	Teacher Assistants	1835	2134	299	1.52%	65
25-9199	Library, Museum, Training, and Other Education Workers, All Other (OES Only)	***	***	***	***	***
<b>27-0000</b>	<b>Arts, Design, Entertainment, Sports, and Media Occupations</b>	<b>28,854</b>	<b>32,086</b>	<b>3232</b>	<b>1.07%</b>	<b>866</b>
27-1011	Art Directors	430	482	52	1.15%	15
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	67	75	8	1.13%	2
27-1014	Multi-Media Artists and Animators	359	406	47	1.24%	13
27-1021	Commercial and Industrial Designers	64	78	14	2.00%	2
27-1023	Floral Designers	173	169	-4	-0.23%	2
27-1024	Graphic Designers	1607	1949	342	1.95%	56
27-1025	Interior Designers	487	609	122	2.26%	19
27-1026	Merchandise Displayers and Window Trimmers	39	43	4	0.98%	1
27-1027	Set and Exhibit Designers	224	239	15	0.65%	5
27-1099	Art and Design Workers, All Other (OES Only)	1571	1668	97	0.60%	38
27-2011	Actors	174	198	24	1.30%	5
27-2012	Producers and Directors	1636	1860	224	1.29%	47
27-2021	Athletes and Sports Competitors	96	119	23	2.17%	4
27-2022	Coaches and Scouts	445	526	81	1.69%	17
27-2031	Dancers	68	73	5	0.71%	5
27-2032	Choreographers	143	177	34	2.16%	12
27-2041	Music Directors and Composers	57	64	7	1.17%	2
27-2042	Musicians and Singers	262	304	42	1.50%	10
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	***	***	***	***	***
27-3010	Announcers	500	443	-57	-1.20%	13
27-3020	News Analysts, Reporters and Correspondents	1441	1431	-10	-0.07%	35
27-3031	Public Relations Specialists	4201	5205	1004	2.17%	161
27-3041	Editors	3569	3740	171	0.47%	104
27-3042	Technical Writers	516	596	80	1.45%	23
27-3043	Writers and Authors	5832	6385	553	0.91%	155
27-3091	Interpreters and Translators	159	178	19	1.14%	4
27-3099	Media and Communication Workers, All Other	2046	2199	153	0.72%	40
27-4011	Audio and Video Equipment Technicians	223	264	41	1.70%	10
27-4012	Broadcast Technicians	611	667	56	0.88%	21
27-4013	Radio Operators	13	12	-1	-0.80%	0
27-4014	Sound Engineering Technicians	75	84	9	1.14%	3
27-4021	Photographers	328	313	-15	-0.47%	7
27-4031	Camera Operators, Television, Video,					

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
	and Motion Picture	363	399	36	0.95%	11
27-4032	Film and Video Editors	187	213	26	1.31%	7
27-4099	Media and Communication Equipment Workers, All Other	***	***	***	***	***
<b>29-0000</b>	<b>Healthcare Practitioners and Technical Occupations</b>	<b>31,344</b>	<b>32,917</b>	<b>1573</b>	<b>0.49%</b>	<b>738</b>
29-1011	Chiropractors	26	28	2	0.74%	1
29-1020	Dentists	533	493	-40	-0.78%	9
29-1031	Dietitians and Nutritionists	165	166	1	0.06%	4
29-1041	Optometrists	264	286	22	0.80%	10
29-1051	Pharmacists	473	530	57	1.14%	15
29-1061	Anesthesiologists	288	302	14	0.48%	5
29-1062	Family and General Practitioners	3672	3713	41	0.11%	53
29-1063	Internists, General	95	94	-1	-0.11%	1
29-1064	Obstetricians and Gynecologists	779	852	73	0.90%	18
29-1065	Pediatricians, General	1386	1555	169	1.16%	35
29-1066	Psychiatrists	381	358	-23	-0.62%	5
29-1067	Surgeons	975	1071	96	0.94%	23
29-1069	Physicians and Surgeons, All Other	2899	3046	147	0.50%	53
29-1071	Physician Assistants	329	404	75	2.07%	13
29-1081	Podiatrists	102	100	-2	-0.20%	3
29-1111	Registered Nurses	8387	8949	562	0.65%	232
29-1121	Audiologists	113	127	14	1.17%	4
29-1122	Occupational Therapists	210	234	24	1.09%	5
29-1123	Physical Therapists	355	391	36	0.97%	7
29-1124	Radiation Therapists	240	259	19	0.76%	7
29-1125	Recreational Therapists	143	140	-3	-0.21%	3
29-1126	Respiratory Therapists	250	287	37	1.39%	12
29-1127	Speech-Language Pathologists	205	231	26	1.20%	8
29-1131	Veterinarians	200	239	39	1.80%	9
29-1199	Health Diagnosing and Treating Practitioners, All Other	459	498	39	0.82%	14
29-2011	Medical and Clinical Laboratory Technologists	716	706	-10	-0.14%	19
29-2012	Medical and Clinical Laboratory Technicians	523	515	-8	-0.15%	14
29-2021	Dental Hygienists	169	193	24	1.34%	4
29-2031	Cardiovascular Technologists and Technicians	214	237	23	1.03%	6
29-2032	Diagnostic Medical Sonographers	128	131	3	0.23%	3
29-2033	Nuclear Medicine Technologists	135	135	0	0.00%	3
29-2034	Radiologic Technologists and Technicians	567	582	15	0.26%	12
29-2041	Emergency Medical Technicians and Paramedics	700	665	-35	-0.51%	8
29-2051	Dietetic Technicians	61	62	1	0.16%	1
29-2052	Pharmacy Technicians	442	464	22	0.49%	8
29-2053	Psychiatric Technicians	511	443	-68	-1.42%	7
29-2054	Respiratory Therapy Technicians	155	180	25	1.51%	5
29-2055	Surgical Technologists	301	320	19	0.61%	6
29-2056	Veterinary Technologists and Technicians	49	68	19	3.33%	3
29-2061	Licensed Practical and Licensed Vocational Nurses	2657	2604	-53	-0.20%	58
29-2071	Medical Records					



## Appendix (cont.)

Appendix Table II – D.C. Occupational Detail

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
	and Health Information Technicians	802	963	161	1.85%	28
29-2091	Orthotists and Prosthetists	12	13	1	0.80%	0
29-9010	Occupational Health and Safety Specialists					
	and Technicians	135	140	5	0.36%	3
29-9091	Athletic Trainers	29	34	5	1.60%	1
29-9100	Other Health Practitioners And Technical Workers	101	101	0	0.00%	2
29-9199	Health Professionals					
	and Technicians, All Other (OES Only)	101	101	0	0.00%	2
<b>31-0000</b>	<b>Healthcare Support Occupations</b>	<b>7107</b>	<b>8018</b>	<b>911</b>	<b>1.21%</b>	<b>204</b>
31-1011	Home Health Aides	807	1033	226	2.50%	33
31-1012	Nursing Aides, Orderlies, and Attendants	3100	3281	181	0.57%	59
31-1013	Psychiatric Aides	538	599	61	1.08%	13
31-2011	Occupational Therapist Assistants	24	24	0	0.00%	0
31-2012	Occupational Therapist Aides	24	23	-1	-0.42%	0
31-2021	Physical Therapist Assistants	70	80	10	1.34%	2
31-2022	Physical Therapist Aides	35	37	2	0.56%	1
31-9011	Massage Therapists	122	165	43	3.07%	7
31-9091	Dental Assistants	***	***	***	***	***
31-9092	Medical Assistants	954	1252	298	2.76%	47
31-9093	Medical Equipment Preparers	272	266	-6	-0.22%	5
31-9094	Medical Transcriptionists	170	180	10	0.57%	4
31-9095	Pharmacy Aides	83	78	-5	-0.62%	2
31-9096	Veterinary Assistants					
	and Laboratory Animal Caretakers	62	73	11	1.65%	2
31-9099	Healthcare Support Workers, All Other	***	***	***	***	***
<b>33-0000</b>	<b>Protective Service Occupations</b>	<b>26,078</b>	<b>28,605</b>	<b>2527</b>	<b>0.93%</b>	<b>927</b>
33-1012	First-Line Supervisors/Managers of Police and Detectives	***	***	***	***	***
33-1021	First-Line Supervisors/Managers of Fire Fighting and Prevention Workers	***	***	***	***	***
33-1099	First-Line Supervisors/Managers, Protective Service Workers, All Other	695	747	52	0.72%	23
33-2011	Fire Fighters	***	***	***	***	***
33-2021	Fire Inspectors and Investigators	***	***	***	***	***
33-3012	Correctional Officers and Jailers	***	***	***	***	***
33-3021	Detectives and Criminal Investigators	***	***	***	***	***
33-3031	Fish and Game Wardens	***	***	***	***	***
33-3041	Parking Enforcement Workers	***	***	***	***	***
33-3051	Police and Sheriff's Patrol Officers	***	***	***	***	***
33-9021	Private Detectives and Investigators	548	791	243	3.74%	36
33-9032	Security Guards	10,528	12,035	1507	1.35%	380
33-9091	Crossing Guards	***	***	***	***	***
33-9099	Protective Service Workers, All Other	***	***	***	***	***
<b>35-0000</b>	<b>Food Preparation and Serving Related Occupations</b>	<b>36,234</b>	<b>40,274</b>	<b>4040</b>	<b>1.06%</b>	<b>1878</b>
35-1011	Chefs and Head Cooks	655	734	79	1.15%	27
35-1012	First-Line Supervisors/Managers of Food Preparation and Serving Workers	1707	1885	178	1.00%	58
35-2011	Cooks, Fast Food	863	860	-3	-0.03%	27

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
35-2012	Cooks, Institution and Cafeteria	1240	1179	-61	-0.50%	38
35-2013	Cooks, Private Household	43	50	7	1.52%	2
35-2014	Cooks, Restaurant	3029	3394	365	1.14%	130
35-2015	Cooks, Short Order	198	218	20	0.97%	8
35-2021	Food Preparation Workers	2897	3320	423	1.37%	145
35-3011	Bartenders	1793	1875	82	0.45%	79
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	8625	10073	1448	1.56%	519
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1814	1952	138	0.74%	132
35-3031	Waiters and Waitresses	7256	8194	938	1.22%	467
35-3041	Food Servers, Nonrestaurant	836	856	20	0.24%	30
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	1356	1495	139	0.98%	59
35-9021	Dishwashers	2386	2486	100	0.41%	91
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	898	1004	106	1.12%	39
35-9099	Food Preparation and Serving Related Workers, All Other	638	699	61	0.92%	26
<b>37-0000</b>	<b>Building and Grounds Cleaning and Maintenance Occupations</b>	<b>27,899</b>	<b>31,872</b>	<b>3973</b>	<b>1.34%</b>	<b>950</b>
37-1011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	1338	1486	148	1.05%	46
37-1012	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers	239	269	30	1.19%	5
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	17,117	19,868	2751	1.50%	600
37-2012	Maids and Housekeeping Cleaners	7595	8474	879	1.10%	247
37-2021	Pest Control Workers	49	47	-2	-0.42%	1
37-3011	Landscaping and Groundskeeping Workers	1416	1567	151	1.02%	46
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	23	25	2	0.84%	1
37-3013	Tree Trimmers and Pruners	38	41	3	0.76%	1
37-9099	Building and Grounds Cleaning and Maintenance Workers, All Other (OES Only)	84	95	11	1.24%	3
<b>39-0000</b>	<b>Personal Care and Service Occupations</b>	<b>14,207</b>	<b>16,467</b>	<b>2260</b>	<b>1.49%</b>	<b>568</b>
39-1011	Gaming Supervisors	15	14	-1	-0.69%	0
39-1012	Slot Key Persons	11	10	-1	-0.95%	0
39-1021	First-Line Supervisors/Managers of Personal Service Workers	582	581	-1	-0.02%	15
39-2021	Nonfarm Animal Caretakers	103	118	15	1.37%	4
39-3031	Ushers, Lobby Attendants, and Ticket Takers	458	510	52	1.08%	31
39-3091	Amusement and Recreation Attendants	201	247	46	2.08%	10
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	64	79	15	2.13%	3
39-4011	Embalmers	21	22	1	0.47%	1
39-4021	Funeral Attendants	20	23	3	1.41%	1

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
39-5011	Barbers	554	627	73	1.25%	23
39-5012	Hairdressers, Hairstylists, and Cosmetologists	1336	1562	226	1.58%	48
39-5092	Manicurists and Pedicurists	208	256	48	2.10%	9
39-5093	Shampooers	256	303	47	1.70%	10
39-5094	Skin Care Specialists	176	208	32	1.68%	7
39-6011	Baggage Porters and Bellhops	680	788	108	1.48%	29
39-6012	Concierges	542	614	72	1.26%	22
39-6021	Tour Guides and Escorts	96	115	19	1.82%	4
39-6022	Travel Guides	10	12	2	1.84%	1
39-6032	Transportation Attendants, Except Flight Attendants and Baggage Porters	489	526	37	0.73%	10
39-9011	Child Care Workers	3796	4185	389	0.98%	142
39-9021	Personal and Home Care Aides	1583	1939	356	2.05%	61
39-9031	Fitness Trainers and Aerobics Instructors	548	807	259	3.95%	39
39-9032	Recreation Workers	764	815	51	0.65%	23
39-9041	Residential Advisors	1646	2052	406	2.23%	75
39-9099	Personal Care and Service Workers, All Other	34	38	4	1.12%	1
<b>41-0000</b>	<b>Sales and Related Occupations</b>	<b>36,037</b>	<b>39,192</b>	<b>3155</b>	<b>0.84%</b>	<b>1374</b>
41-1011	First-Line Supervisors/Managers of Retail Sales Workers	3426	3680	254	0.72%	87
41-1012	First-Line Supervisors/Managers Non-Retail Sales Workers	1842	2001	159	0.83%	51
41-2011	Cashiers	6811	7354	543	0.77%	386
41-2012	Gaming Change Persons and Booth Cashiers	40	39	-1	-0.25%	2
41-2021	Counter and Rental Clerks	683	757	74	1.03%	34
41-2022	Parts Salespersons	94	92	-2	-0.21%	3
41-2031	Retail Salespersons	7257	8038	781	1.03%	342
41-3011	Advertising Sales Agents	606	642	36	0.58%	15
41-3021	Insurance Sales Agents	736	830	94	1.21%	27
41-3031	Securities, Commodities, and Financial Services Sales Agents	1014	1053	39	0.38%	15
41-3041	Travel Agents	788	887	99	1.19%	28
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	446	516	70	1.47%	19
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1727	1954	227	1.24%	68
41-9011	Demonstrators and Product Promoters	33	39	6	1.68%	1
41-9021	Real Estate Brokers	583	635	52	0.86%	17
41-9022	Real Estate Sales Agents	4965	5487	522	1.00%	151
41-9031	Sales Engineers	374	434	60	1.50%	17
41-9041	Telemarketers	1971	1839	-132	-0.69%	32
41-9091	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	92	62	-30	-3.87%	2
41-9099	Sales and Related Workers, All Other	2553	2850	297	1.11%	78
<b>43-0000</b>	<b>Office and Administrative Support Occupations</b>	<b>137,086</b>	<b>140,485</b>	<b>3399</b>	<b>0.25%</b>	<b>3432</b>
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	10,080	10,335	255	0.25%	242

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
43-2011	Switchboard Operators, Including Answering Service	1641	1551	-90	-0.56%	42
43-2021	Telephone Operators	180	77	-103	-8.14%	5
43-2099	Communications Equipment Operators, All Other	***	***	***	***	***
43-3011	Bill and Account Collectors	2060	2453	393	1.76%	78
43-3021	Billing and Posting Clerks and Machine Operators	1329	1297	-32	-0.24%	23
43-3031	Bookkeeping, Accounting, and Auditing Clerks	5771	5801	30	0.05%	111
43-3051	Payroll and Timekeeping Clerks	1067	1062	-5	-0.05%	28
43-3061	Procurement Clerks	625	612	-13	-0.21%	16
43-3071	Tellers	899	962	63	0.68%	51
43-4011	Brokerage Clerks	77	59	-18	-2.63%	1
43-4021	Correspondence Clerks	135	120	-15	-1.17%	4
43-4031	Court, Municipal, and License Clerks	79	79	0	0.00%	2
43-4041	Credit Authorizers, Checkers, and Clerks	***	***	***	***	***
43-4051	Customer Service Representatives	6225	7249	1024	1.53%	195
43-4061	Eligibility Interviewers, Government Programs	245	189	-56	-2.56%	7
43-4071	File Clerks	1147	996	-151	-1.40%	34
43-4081	Hotel, Motel, and Resort Desk Clerks	***	***	***	***	***
43-4111	Interviewers, Except Eligibility and Loan	898	1051	153	1.59%	39
43-4121	Library Assistants, Clerical	549	617	68	1.17%	29
43-4131	Loan Interviewers and Clerks	91	73	-18	-2.18%	1
43-4141	New Accounts Clerks	70	76	6	0.83%	2
43-4151	Order Clerks	518	411	-107	-2.29%	12
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	1845	2017	172	0.90%	57
43-4171	Receptionists and Information Clerks	6484	7508	1024	1.48%	262
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	865	970	105	1.15%	33
43-4999	Financial, Information, and Record Clerks, All Other (OES Only)	26,761	27,515	754	0.28%	495
43-5011	Cargo and Freight Agents	25	13	-12	-6.33%	1
43-5021	Couriers and Messengers	387	339	-48	-1.32%	9
43-5031	Police, Fire, and Ambulance Dispatchers	211	202	-9	-0.43%	5
43-5032	Dispatchers, Except Police, Fire, and Ambulance	496	500	4	0.08%	11
43-5041	Meter Readers, Utilities	142	115	-27	-2.09%	5
43-5051	Postal Service Clerks	***	***	***	***	***
43-5052	Postal Service Mail Carriers	***	***	***	***	***
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	***	***	***	***	***
43-5061	Production, Planning, and Expediting Clerks	581	639	58	0.96%	20
43-5071	Shipping, Receiving, and Traffic Clerks	1148	1178	30	0.26%	27
43-5081	Stock Clerks and Order Fillers	1835	1694	-141	-0.80%	68
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	29	34	5	1.60%	1
43-6011	Executive Secretaries and Administrative Assistants	11,573	12,147	574	0.49%	279
43-6012	Legal Secretaries	6871	7613	742	1.03%	206
43-6013	Medical Secretaries	886	803	-83	-0.98%	17
43-6014	Secretaries, Except Legal, Medical, and Executive	15,183	14,819	-364	-0.24%	291

## Appendix (cont.)

Appendix Table II – D.C. Occupational Detail

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
43-9011	Computer Operators	800	681	-119	-1.60%	17
43-9021	Data Entry Keyers	1254	1010	-244	-2.14%	30
43-9022	Word Processors and Typists	3143	2098	-1045	-3.96%	69
43-9031	Desktop Publishers	196	196	0	0.00%	4
43-9041	Insurance Claims and Policy Processing Clerks	882	893	11	0.12%	15
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	2267	2220	-47	-0.21%	68
43-9061	Office Clerks, General	14,167	14,747	580	0.40%	372
43-9071	Office Machine Operators, Except Computer	1008	988	-20	-0.20%	25
43-9081	Proofreaders and Copy Markers	153	140	-13	-0.88%	3
43-9111	Statistical Assistants	***	***	***	***	***
43-9999	Secretaries, Administrative Assistants, and Other Office Support Workers, All Other (OES Only)	1861	1796	-65	-0.35%	40
<b>45-0000</b>	<b>Farming, Fishing, and Forestry Occupations</b>	<b>150</b>	<b>164</b>	<b>14</b>	<b>0.90%</b>	<b>5</b>
45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	20	23	3	1.41%	1
45-2011	Agricultural Inspectors	***	***	***	***	***
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	19	25	6	2.78%	1
45-2093	Farmworkers, Farm and Ranch Animals	76	80	4	0.51%	3
45-4011	Forest and Conservation Workers	***	***	***	***	***
<b>47-0000</b>	<b>Construction and Extraction Occupations</b>	<b>13,213</b>	<b>15,207</b>	<b>1994</b>	<b>1.42%</b>	<b>459</b>
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	1023	1195	172	1.57%	35
47-2021	Brickmasons and Blockmasons	214	243	29	1.28%	6
47-2022	Stonemasons	54	65	11	1.87%	2
47-2031	Carpenters	2698	3018	320	1.13%	76
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	22	26	4	1.68%	1
47-2051	Cement Masons and Concrete Finishers	210	271	61	2.58%	10
47-2053	Terrazzo Workers and Finishers	85	101	16	1.74%	3
47-2061	Construction Laborers	2150	2500	350	1.52%	64
47-2071	Paving, Surfacing, and Tamping Equipment Operators	28	28	0	0.00%	0
47-2072	Pile-Driver Operators	31	36	5	1.51%	1
47-2073	Operating Engineers and Other Construction Equipment Operators	697	760	63	0.87%	24
47-2081	Drywall and Ceiling Tile Installers	142	181	39	2.46%	7
47-2082	Tapers	15	18	3	1.84%	1
47-2111	Electricians	1201	1408	207	1.60%	44
47-2121	Glaziers	51	56	5	0.94%	2
47-2130	Insulation Workers	55	60	5	0.87%	2
47-2141	Painters, Construction and Maintenance	720	794	74	0.98%	18
47-2142	Paperhangers	74	86	12	1.51%	2
47-2151	Pipelayers	67	79	12	1.66%	3
47-2152	Plumbers, Pipefitters, and Steamfitters	1787	2154	367	1.89%	78
47-2161	Plasterers and Stucco Masons	35	40	5	1.34%	1
47-2171	Reinforcing Iron and Rebar Workers	***	***	***	***	***
47-2181	Roofers	39	48	9	2.10%	2

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
47-2211	Sheet Metal Workers	314	383	69	2.01%	14
47-3011	Helpers—Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	37	39	2	0.53%	2
47-3012	Helpers—Carpenters	101	109	8	0.77%	5
47-3013	Helpers—Electricians	85	92	7	0.79%	4
47-3015	Helpers—Pipelayers, Plumbers, Pipefitters, and Steamfitters	187	214	27	1.36%	11
47-3019	Helpers, Construction Trades, All Other	397	421	24	0.59%	19
47-4011	Construction and Building Inspectors	202	217	15	0.72%	6
47-4021	Elevator Installers and Repairers	***	***	***	***	***
47-4041	Hazardous Materials Removal Workers	***	***	***	***	***
47-4051	Highway Maintenance Workers	27	26	-1	-0.38%	0
47-4900	All Other Construction Trades and Related Workers	314	355	41	1.23%	9
47-4999	Construction Trades and Related Workers, All Other (OES Only)	314	355	41	1.23%	9
<b>49-0000</b>	<b>Installation, Maintenance, and Repair Occupations</b>	<b>8980</b>	<b>9595</b>	<b>615</b>	<b>0.66%</b>	<b>269</b>
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	681	732	51	0.72%	22
49-2011	Computer, Automated Teller, and Office Machine Repairers	65	68	3	0.45%	1
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	353	337	-16	-0.46%	7
49-2091	Avionics Technicians	52	54	2	0.38%	2
49-2092	Electric Motor, Power Tool, and Related Repairers	11	11	0	0.00%	0
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	238	249	11	0.45%	6
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	***	***	***	***	***
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	61	52	-9	-1.58%	1
49-2098	Security and Fire Alarm Systems Installers	23	25	2	0.84%	1
49-3021	Automotive Body and Related Repairers	89	90	1	0.11%	2
49-3022	Automotive Glass Installers and Repairers	39	47	8	1.88%	2
49-3023	Automotive Service Technicians and Mechanics	888	935	47	0.52%	28
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	316	321	5	0.16%	9
49-3041	Farm Equipment Mechanics	23	23	0	0.00%	1
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	139	134	-5	-0.37%	3
49-3091	Bicycle Repairers	20	23	3	1.41%	1
49-9011	Mechanical Door Repairers	14	17	3	1.96%	1
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	378	437	59	1.46%	11
49-9031	Home Appliance Repairers	47	40	-7	-1.60%	1
49-9041	Industrial Machinery Mechanics	210	236	26	1.17%	7
49-9042	Maintenance and Repair Workers, General	3728	4142	414	1.06%	113
49-9043	Maintenance Workers, Machinery	***	***	***	***	***
49-9045	Refractory Materials Repairers, Except Brickmasons	30	38	8	2.39%	1
49-9051	Electrical Power-Line Installers and Repairers	408	420	12	0.29%	14
49-9052	Telecommunications Line Installers and Repairers	18	22	4	2.03%	1

## Appendix (cont.)

Appendix Table II – D.C. Occupational Detail

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
49-9061	Camera and Photographic Equipment Repairers	27	21	-6	-2.48%	1
49-9062	Medical Equipment Repairers	45	43	-2	-0.45%	1
49-9069	Precision Instrument and Equipment Repairers, All Other	10	10	0	0.00%	0
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	15	14	-1	-0.69%	0
49-9092	Commercial Divers	16	16	0	0.00%	0
49-9094	Locksmiths and Safe Repairers	182	183	1	0.05%	6
49-9096	Riggers	***	***	***	***	***
49-9098	Helpers—Installation, Maintenance, and Repair Workers	258	282	24	0.89%	11
49-9099	Installation, Maintenance, and Repair Workers, All Other	198	171	-27	-1.46%	5
<b>51-0000</b>	<b>Production Occupations</b>	<b>10,011</b>	<b>10,347</b>	<b>336</b>	<b>0.33%</b>	<b>295</b>
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	611	636	25	0.40%	15
51-2022	Electrical and Electronic Equipment Assemblers	69	76	7	0.97%	2
51-2041	Structural Metal Fabricators and Fitters	10	7	-3	-3.50%	0
51-2092	Team Assemblers	251	280	29	1.10%	9
51-2099	Assemblers and Fabricators, All Other	54	54	0	0.00%	1
51-3011	Bakers	495	474	-21	-0.43%	12
51-3021	Butchers and Meat Cutters	101	87	-14	-1.48%	2
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	93	102	9	0.93%	3
51-3099	Food Processing Workers, All Other (OES Only)	***	***	***	***	***
51-4041	Machinists	98	103	5	0.50%	3
51-4062	Patternmakers, Metal and Plastic	***	***	***	***	***
51-4121	Welders, Cutters, Solderers, and Brazers	234	277	43	1.70%	11
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	***	***	***	***	***
51-5011	Bindery Workers	650	599	-51	-0.81%	17
51-5012	Bookbinders	94	96	2	0.21%	3
51-5021	Job Printers	250	271	21	0.81%	8
51-5022	Prepress Technicians and Workers	626	596	-30	-0.49%	15
51-5023	Printing Machine Operators	1138	1141	3	0.03%	27
51-6011	Laundry and Dry-Cleaning Workers	962	1062	100	0.99%	36
51-6021	Pressers, Textile, Garment, and Related Materials	311	331	20	0.63%	7
51-6031	Sewing Machine Operators	50	53	3	0.58%	1
51-6041	Shoe and Leather Workers and Repairers	32	32	0	0.00%	1
51-6051	Sewers, Hand	13	13	0	0.00%	0
51-6052	Tailors, Dressmakers, and Custom Sewers	108	117	9	0.80%	3
51-6093	Upholsterers	20	17	-3	-1.61%	1
51-7011	Cabinetmakers and Bench Carpenters	186	152	-34	-2.00%	5
51-8013	Power Plant Operators	***	***	***	***	***
51-8021	Stationary Engineers and Boiler Operators	1023	1033	10	0.10%	20
51-8031	Water and Liquid Waste Treatment Plant and System Operators	196	302	106	4.42%	17
51-8092	Gas Plant Operators	13	15	2	1.44%	1
51-8099	Plant and System Operators, All Other	171	174	3	0.17%	6

## Appendix (cont.)

**Appendix Table II – D.C. Occupational Detail**

SOC	Occupational Title	2002	2012	Growth	Growth Rate	Annual Openings
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	11	10	-1	-0.95%	0
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	33	23	-10	-3.55%	1
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	334	344	10	0.30%	9
51-9071	Jewelers and Precious Stone and Metal Workers	24	22	-2	-0.87%	1
51-9081	Dental Laboratory Technicians	89	82	-7	-0.82%	2
51-9082	Medical Appliance Technicians	15	15	0	0.00%	0
51-9083	Ophthalmic Laboratory Technicians	***	***	***	***	***
51-9111	Packaging and Filling Machine Operators and Tenders	111	106	-5	-0.46%	2
51-9123	Painting, Coating, and Decorating Workers	30	31	1	0.33%	1
51-9131	Photographic Process Workers	140	125	-15	-1.13%	4
51-9132	Photographic Processing Machine Operators	114	118	4	0.35%	3
51-9194	Etchers and Engravers	20	20	0	0.00%	1
51-9196	Paper Goods Machine Setters, Operators, and Tenders	43	36	-7	-1.76%	1
51-9198	Helpers--Production Workers	651	793	142	1.99%	32
51-9199	Production Workers, All Other	218	208	-10	-0.47%	5
<b>53-0000</b>	<b>Transportation and Material Moving Occupations</b>	<b>19,516</b>	<b>19,729</b>	<b>213</b>	<b>0.11%</b>	<b>506</b>
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	189	172	-17	-0.94%	4
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	612	627	15	0.24%	16
53-2012	Commercial Pilots	14	11	-3	-2.38%	0
53-2021	Air Traffic Controllers	***	***	***	***	***
53-3021	Bus Drivers, Transit and Intercity	922	964	42	0.45%	24
53-3022	Bus Drivers, School	990	1037	47	0.46%	26
53-3031	Driver/Sales Workers	2436	2455	19	0.08%	42
53-3032	Truck Drivers, Heavy and Tractor-Trailer	1382	1456	74	0.52%	30
53-3033	Truck Drivers, Light or Delivery Services	1632	1742	110	0.65%	26
53-3041	Taxi Drivers and Chauffeurs	1364	1374	10	0.07%	14
53-3099	Motor Vehicle Operators, All Other	490	502	12	0.24%	8
53-5021	Captains, Mates, and Pilots of Water Vessels	45	38	-7	-1.68%	1
53-5099	Water Transportation Workers, All Other (OES Only)	***	***	***	***	***
53-6021	Parking Lot Attendants	789	941	152	1.78%	39
53-6031	Service Station Attendants	25	29	4	1.50%	2
53-6051	Transportation Inspectors	291	297	6	0.20%	8
53-6099	Transportation Workers, All Other	***	***	***	***	***
53-7011	Conveyor Operators and Tenders	***	***	***	***	***
53-7021	Crane and Tower Operators	105	119	14	1.26%	4
53-7051	Industrial Truck and Tractor Operators	278	256	-22	-0.82%	5
53-7061	Cleaners of Vehicles and Equipment	269	267	-2	-0.07%	9
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	4309	3941	-368	-0.89%	141
53-7063	Machine Feeders and Offbearers	***	***	***	***	***
53-7064	Packers and Packagers, Hand	1023	1180	157	1.44%	35
53-7071	Gas Compressor and Gas Pumping Station Operators	113	148	35	2.73%	6
53-7081	Refuse and Recyclable Material Collectors	1371	1238	-133	-1.02%	35
53-7199	Material Moving Workers, All Other	296	327	31	1.00%	11



## Appendix (cont.)

### **Notes on methodology for industry employment projections.**

The industry employment projections were prepared using the Long Term Projections (ITP) model, a product of the ALMIS Long-term Industry Projections Tools Consortium and the Utah Department of Workforce Services. The ITP model offers the forecaster a set of methodologies that have proven to be most useful in making industry employment projections. It contains three basic types of models: shift share, time series and regression.

Shift share models decompose economic activity into three factors that explain differences in growth rates between different geographic areas. One is the influence of general economic conditions in a larger area of which the region is a part. A second factor is the competitive position that an area enjoys with respect to certain industries. A third factor is the industry mix in an area's economy. Usually an area's economy is compared with a larger area of which it is a part. The ITP model incorporates eight types of shift share models including Constant Share, Constant Regional Rate, Implicit Shift Share and Classical Shift Share. These different models produce a range of outcomes, a useful attribute.

Time series analysis includes a range of techniques, only some of which are used in the ITP model. Not included in ITP are exponential smoothing, ARIMA, vector auto regression (VAR) and state space models, all of which are more appropriate for short-run projections using monthly data. Long term projections including the ones we present here are generally done using annual data. The model focuses on four types of trends: linear, logarithmic, exponential and polynomial. These models describe regular patterns of growth or decline in employment at a constant, increasing or decreasing rate. More complex patterns cannot be modeled in ITP using time series models.

Regression models explain statistically the variations in employment over time using explanatory variables. The models are fitted to a base period for which the values of the explanatory variables are known, and then projected using the base period equation and projected values. The ITP model contains two sets of regression models: customized and predefined. The customized models enable the analyst to select a unique set of explanatory variables from those available that fits the data optimally. The predefined models provide the analyst with a more limited set of variables but include variables that have proved to be useful in projecting employment. They enable the analyst to fit a regression model quickly and well, a useful feature when nearly 100 industries have to be forecast. Because regression models require explanatory variables for the base period to which the model is fitted and for the forecast period, some method of projecting explanatory variables is needed. We have chosen to use Global Insight, formerly DRI-WEFA, as our source for explanatory variable forecasts. Global Insight has large macroeconomic models for the nation, states and metropolitan areas. Though no forecasting model is perfect, Global Insight has a good track record in its forecasts of the Washington area and is an excellent source for projections of this kind. Variables from Global Insight include the labor force, the unemployment rate, population, gross regional product, personal income, and total employment.

The authors generated a variety of employment projections for each industry using mostly shift share and time series models on ITP. Regression models proved less useful than in the past because the conversion to NAICS greatly reduced the number of years for which data is available. We selected a single projection that we deemed the best of the lot. Criteria included model diagnostics, the relation of the projection to the historical series, as well as recent developments in the industry and the economy. In this way we generated employment projections for 85 industry groups at the two and three and four-digit NAICS industry levels.

### **ii Notes on methodology for employment by occupation.**

Employment by occupation is determined by the distribution of employment by industry. The authors prepared the occupational projections using the MicroMatrix Occupational Projections System developed by the Utah Department of Workforce Services.

## Appendix (cont.)

The MicroMatrix program projects occupational employment from the projection of industry employment that precedes it. MicroMatrix combines industry employment projections with Occupational Employment Survey (OES) data produced by each state annually. The D.C. 2002-2012 projections use 2000, 2001 and 2002 survey data. MicroMatrix processing begins with loading the industry projections and OES data into the program. The OES data provide staffing patterns which show the distribution of jobs by occupation within an industry. For example, the legal services industry is staffed with several occupations: lawyers, court reporters, law clerks, paralegals, and legal secretaries, to name a few. If the legal services industry is expanding, then legal services employment will expand across the whole range of occupations employed in the industry. MicroMatrix allows users to create their own staffing patterns if they choose or to use national staffing patterns for industries included in the projections but not included in the OES survey.

Past staffing patterns are used to forecast occupational employment, but the program adjusts for projected changes in staffing patterns by using industry specific occupational change factors. For example, the base period staffing pattern in office and administrative support occupations in the federal government might change due to wider use of office automation technologies. In such a case past staffing patterns would need to be adjusted. The Bureau of Labor Statistics produces change factors for each occupation in each industry using national data. If the change factor for secretaries were less than one, the percentage of secretaries would decline in the occupational projections. The analyst can adjust national change factors to local conditions if that information is available to him. In another step, MicroMatrix estimates self-employed, unpaid family workers and employees in private households from national patterns and local employment totals.

Using each state's industry projections, the program projects employment by occupation for each industry and aggregates them across industries to arrive at total projected employment by occupation. The end result is a comprehensive set of employment projections covering approximately 600 occupations.

### **iii Notes on growth rates:**

The fastest growing occupations are those with the highest growth rates. Growth rate measures the forecasted annual percentage change from the base year 2002 to the projected year 2012. The rates reported in the tables are compound growth rates for the 10-year period. Since occupations with low employment totals start from a low base total, a small increase in an occupation's employment can result in a high growth rate. Conversely, an occupation with a high total for the base year 2002 could have a large increase in forecasted employment, but a small growth rate. Restricting the table to occupations with over 100 jobs reduces, but does not eliminate, this effect.

## Authors' Note

These projections are the result of the collective efforts of several individuals. First, the U.S. Department of Labor, Employment and Training Administration, provided funding for the project. Gregg Irish, Director of the D.C. Department of Employment Services (DOES), gave it his approval. Charles Roeslin, Associate Director, Office of Labor Market Research and Information of DOES, contributed enormously by sponsoring the project, assisting in the collection of data, sharing information, reviewing the projections, and dealing patiently with various setbacks along the way. Without his support this project could not have been completed. John Sliva, an economist with DOES, contributed to the collection of the necessary data and in numerous other ways. Fred Siegmund did most of the detail work on the projections, wrote the report and prepared the graphs and tables. Ray Whitman oversaw the project for Job Trends Associates and reviewed and edited the report. This report did not reflect breaking news. The authors did not take into consideration the proposed reassignment of jobs at Walter Reed Army Medical Center in making these projections.

Ray D. Whitman and Fred Siegmund  
Job Trends Associates, Inc.  
June 1, 2005

## Notes

## Notes



**Prepared by**  
**Job Trends Associates, Inc.**

Ray D. Whitman, President and Chief Economist  
Fred Siegmund, Senior Economist

**Department of Employment Services**  
**Office of Labor Market Research and Information**  
64 New York Avenue, N.E., 3rd Floor  
Washington, D.C. 20002-3326